Tying the Knot:

Application of Chinese Geomancy in Hawai‘i’s Residential Architecture

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Submitted towards the fulfillment of the requirements for the Doctor of Architecture Degree

School of Architecture
University of Hawai‘i at Mānoa

Doctorate Project Committee:
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We certify that we have read this Doctorate Project and that, in our opinion, it is satisfactory in scope and quality in fulfillment as a Doctorate Project for the degree of Doctor of Architecture in the School of Architecture, University of Hawai‘i at Mānoa.

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ABSTRACT

The purpose of this doctorate project is to explore my Chinese cultural background through history; especially the practice of *fengshui*, wind and water. The outcome of this project is a house design using guidelines formed from the identified *fengshui* principles. Although this house will be designed for Honolulu, Hawai'i, these *fengshui* principles may also be applied anywhere in world.

Chinese immigrants, like my great-great grandparent who immigrated to Maui, Hawai'i, moved to have a better life. Not only did Chinese immigrants make the transition, so did other Asian immigrants like, Japanese, Koreans, Vietnamese, and Filipinos. They brought their cultures and beliefs with them and instilled these aspects into their everyday lives in Hawai'i. Throughout time, the practice of *fengshui* in architecture seems to have lost its sensibility or become diluted here in Hawai'i. Especially in Hawai'i, with its large Asian immigrant population, many Chinese visions and ideas are still recognized; hence, this study proposes *fengshui* principles are still applicable to Hawaiian context, given site-specific considerations. By exposing a new interpretation of *fengshui* principles, which I have designed, gives new possibilities of designing *fengshui* proper homes in the 21st century.

Contemporary case studies are also included in the interpretations of both modern *fengshui* and residential architecture. Case studies such as the Bank of China, Hong Kong Shanghai Bank, residential condominiums in Chicago, Illinois, and the Liljestrand house in Honolulu, Hawai'i, provided valuable information and in-sight of how *fengshui* was applied and the opportunities for applying these principles for a *fengshui*-proper home. Using the knowledge gained from the case studies, both *fengshui* schools (Compass and Form/Shape School) and sensitive design strategies particular to Hawai'i's qualities, this thesis will provide guidelines and principles for residential architecture. This will be exemplified in a design project sited on O'ahu, Hawai'i, in a pursuit to create an excellent well-balanced built environment for the owners.

PREFACE

Many of us have reasons for why we follow our hearts in our daily lives. There is something within that compels us to do what we do. The core of our being begins with our past history dating back to the time of our ancestors.

Locally born and raised in Hawai'i, I am second generation on my father's side of the family and fifth generation on my mother's. My heritage stems from my Chinese ethnic background from both parents, and has instilled in me my culture's values. Growing up in Hawai'i "the melting pot" of cultures, I find myself seeking a direct connection to my Chinese ancestors. *Fengshui* is a concept that I grew up with. My mother would arrange the furniture in our house based on the information and recommendations she gathered from various books. When shopping for a new place to live, she would analyze the structure and layout of the dwelling in addition to the arrangement of furniture. I have "lived" with *fengshui* principles for as long as I can remember, influenced by my mother. I owe so much to my mother for the love and direction she has bestowed in my life's success and soon to be achievements.

It all began with a curiosity of my own ethnic culture and its architectural history. With an understanding of the ancestral roots of the Chinese culture, I can begin to grasp the overall theories, which includes Chinese Geomancy called, *fengshui,* water and wind. *Fengshui* has been around for many years existing under different names according to different cultures. Nowadays, *fengshui* is seen as pseudo-science and hocus-pocus: however I see *fengshui* as a functional design tool that can be incorporated into design. The principles of *fengshui* are complicated, but by understanding the basic principles, it can reveal the overall thoughts of how it can be beneficial once applied.

INTRODUCTION

1.1 Introduction

Throughout history, the relationship between man and nature was very much present. Our current world has evolved, just as our lives have. The relationship between man and nature also includes the built environment. Geomancy is a term that has been transformed into many different names throughout various cultures. In general, geomancy is a method of divination that interprets the "foresight of earth." Geomancy has transformed into many variations throughout the world, one variation located in China. In Chinese culture, the *Yijing* (ininyin transliteration, *I-Ching*), the "*Book of Changes"* is from one of Confucians Classics work. According to *Yijing*, *yin* and *yang* is the balance of understanding the forces of action and changes in all phenomena of the universe. Application of Chinese geomancy, *fengshui* "water and wind" is a design tool used to enrich the owner's prosperity and good fortune. The principles of *fengshui* has been solely monopolized by the Chinese, but has expanded into the West over the years. *Fengshui* was developed into two forms of school, the Form or Shape School and the Compass or Directional School. The practice of *fengshui* has also been seen as pseudo-science and hocus-pocus. Rather than focusing on the negative, architects must understanding the fundamentals of common sense principles to design a well-balanced environment, and must be aware of nature and the built environment.

The purpose of this project is to create design guidelines and principles for contemporary residential architecture in Hawai‘i. Through my investigations and research of universal and Chinese geomancy, *fengshui*, I was be able to grasp the meaning behind the concept. Geomancy is a science of the human habitat and activities engaging in the intangible harmony with the universal civilization including landscape and architecture. *Fengshui* has been in existent since the *Zhou* Dynasty (c.1028 – 257 B.C.E.)[1], through the development of Confucians classic works of the *Yijing*. These design tools will provide the necessary information, but taking into account the basic characteristics of the site is a key component. Hawai‘i's topography deals with surrounding water, mountains, and isolation. Hawai‘i's is unique and unlike any other place on earth.

Residential Architecture is done at a small scale and on an intimate level. Living in a house or condominium, you live in your home majority of your life. You have a sense of comfort and preference on your lifestyle at home. Understanding those spaces of comfort is important to the owner and achieving these demands also is the responsibility of an architect. Although this project revolves around Chinese geomancy, it is more focused on the combined integration of *fengshui* and common sense for quality residential architecture design, which will conclude in a set of guidelines and principles exemplified in a design project on a given site on the island of O‘ahu.

1.1.1 Methodology

The goal of this doctorate project is to design a residential house model that is located in Hawai‘i based on the principles of *fengshui*, making the home *fengshui*-proper. My ultimate goal is to enter the professional field of architecture with a broad, but indepth understanding of residential housing design and *fengshui* design strategies.

The research process begins with the Interpretive-Historical Research Method, which is collected through books, magazines, journal articles, and online resources. Historical research provides necessary background information to set a foundation for the entire doctorate project. The Qualitative Research Strategy includes combination of books, online sources, and personal interviews that address current and contemporary issues of *fengshui* used as a designing tool for Residential Housing. The Case Studies and Combined

1 Wolfram Eberhard, *A History of China,* (Berkeley: University of California Press, 1987, 1977), p. 29.

Methods provide a platform to analyze built examples of residential projects and projects that expresses the application of *fengshui*. In the design phase of the project, the Simulation & Modeling Analysis Method is used to determine the ideal conditions for the sustainable strategies applied to the project.

1.1.2 Existing Knowledge

For the past 3,500 years and counting, *fengshui* has been an existing subject of study. The earliest record of the practice of *fengshui* came from the Han Dynasty (202 B.C.E.-C.E. 220). The study of astronomy and geography is an important factor in *fengshui*. European scholars have found this aspect of Chinese science attractive and fascinated them. They were eager to learn more about it. Many inventions were born out of the large country of China, which includes the following: gun power, printing press, magnetic compass, mathematics, and more. *Fengshui* is a science and social harmony, which was a part of daily part of life. It was considered that with this spiritual science made it possible to establish harmonious relationships between people and their natural surroundings in a settled civilization.

There are an abundance of publications of *fengshui*, but in this study the following books form the basis for the interpretations and analyses in this study:

Architect's guide to Feng Shui: exlploding the myth. (Amsterdam; Boston; London: Architectural Press 2003.) Cate Bramble highlights the differences between "feng shui-lite" as a fashionable pursuit in contrast to the original intentions of the Chinese masters. She presents the authentic principles in a technical, no-nonsense pocket book specifically for architects. As clients become more demanding and the competition for projects heats up, the architect is well advised and equipped with many strings to their bow. This practical guide includes line illustrations that present the principles of *fengshui*, the Chinese art or practice in which a structure or site is chosen or configured so as to harmonize with the spiritual forces that inhabit it. The application in architecture through planning principles, services, building elements and materials, in an accessible, easy reference format.

In *Feng Shui - Environment of Power A Study of Chinese Architecture*. (Great Britain: Academy Group Ltd., 1995.), author Evelyn Lip weaves a brief historical and religious background of China and many aspects of Chinese architecture and landscaping. Chinese architecture and landscaping are described in the details of the planning, architecture, and metaphysical conditions of the imperial palaces of the *Ming* and *Qing* era. The general architectural characteristics of traditional buildings in China depict themes and concepts characteristic of traditional China. Philosophies such as Confucianism and Daoism are translated through planning and landscaping, and the overall design of traditional buildings are related to imperial and feudalistic systems.

The imperial ruler was seen as a heavenly representative on earth and the mediator between man and heaven. The places of worship were the most ornate and grandest religious buildings, including the Temple of Heaven and the Altar of Heaven. The *fengshui* had to be at its best for the sites, completing the ideal cosmological influence, development of landscape and enhancement of the built environment. The balance of *yin* and *yang* and five elements (wood, water, fire, metal, and earth) were applied in landscape and building design. Achieving the respect of the connection between nature and man would provide a conducive and harmonious setting.

In *Interior Design with Feng Shui*. (New York, NY: Penguin Books Lyd., 1987.), Sarah Rossbach explains the principles and history of *fengshui*, then interprets and translates the knowledge into a user friendly "how to" manual for Westerners. This guidebook shows examples of interior spatial arrangements whether in homes, business environments, and gardens. Additionally, concepts, examples, and methods of achieving harmony with one's environment are also explained. She demonstrates how to enhance your career, family, health, and prosperity through words and images of various arrangements: furniture, room and locations of buildings. This work expands her earlier work - it has more information on color, and more illustrations.

Asia's Old Dwellings: Tradition, Resilience, and Change. (New York: Oxford University Press, Inc., 2003.), Ronald Knapp comprehensively reviews the architectural heritage of common dwellings in Asia compiled by several authors from a variety of

disciplinary backgrounds in Asian cultural geography. Knapp exposes Asia's vanishing past and how most of Asia's people continue to live simply in largely rural dwellings that represent traditional rooted building practices. With his collection of information from several authors, he has complied a comprehensive amount of information on house-building practices across the region, environmental adaptations, vernacular types, common building materials, structural components, characteristic spatial patterns and layouts, rituals and domestic routines, and social organizations. Knapp also discusses the resilience of traditional housing patterns, historic preservation and how architects and planners of our current days should rethink and revaluate the past for today's contemporary needs.

CHAPTER 1

1.2 Universal Geomancy

Geomancy is a Greek term that translates literally to "foresight by earth" or "Earth Divination." Geomancy could be described and defined in many ways, but all express similar meanings. The New English Dictionary defines geomancy as "divination by means of lines, figures or dots on the earth or on paper, or by particles of earth cast on the ground."[2] Geomancy has also been described as the art of obtaining insight into the present or future by observing the combinations of patterns made in the earth or on paper by the diviner, while allowing his intuition, or "the spirit of the earth", to control the movement of his wand or pencil.[3] Geomancy, which may roughly be defined as the science of placing human habitats and activities into harmony with the visible and invisible world around us, was at one time universal, and vestiges of it remain in the landscape, architecture, ritual and folklore of many civilizations in the world.[4] Another term that is often used in the context of geomancy is "Divination." Divination is Latin "to foresee, to be inspired by a god", and is the attempt to gain insight into a question or situation by a way of standardizing a process or ritual. Divination can be seen as a systematic

2 Stephen Skinner, *Terrestrial Astrology, Divination by Geomancy (*London: Routledge & Kegan Paul Ltd, 1980), p. 1
3 Ibid., p. 2
4 Nigel Pennick, *The Ancient Science of Geomancy, Man in harmony with the earth* (London: Thames and Hudson Ltd, 1979), p. 7

method with which to organize what appears to be a disjointed, random facet of existence provided insight into a problem at hand.[5] If a distinction is to be made between divination and fortune telling, divination has a formal or ritual and often-social character.[6] The exploration of geomancy has existed and transformed into many other variations all over the world.

1.2.1 The Origin and History of Geomancy

The first Westerner to mention geomancy was Archimedes (278-212 B.C.E), who reputedly drew geomantic figures in sand during the siege of Syracuse to determine the final outcome.[7] The Byzantine Greek manuscripts translate the Arabic raml that means sand, while word laxeuterion probably refers to the method of divination.[8] The practice of geomancy first appears in Greek manuscripts as a translation from the Arabic rather than from any classical sources, which indicates that the practice was of Arab origin rather than Greek tradition. However, lack of historical records prevents any measure of certainty regarding the Arabic Middle East. The original names of the figures were traditionally given in Arabic, excluding a Persian origin. China's first origin of Chinese geomancy was the Book of Changes, *Yijing*, which will be discussed in Chapter 2. The spread of geomancy of many similar forms has proliferated throughout the world with their particular meanings and configurations.

There are many forms of geomancy around labeled with different names. *Ifá* is one of the oldest forms of geomancy that originated in West Africa. *Kumalak* practiced in Kazakhstan, Tuva, and other parts of Central Asia. In India, a similar Indian geomancy system of aesthetics and positioning to harmonize the local energies is referred to as *Tum-Tum el-Hindi* or *Vastu Shastra*. Islam, with its strict doctrine of predestination, offered fertile ground for the proliferation of all systems of divination, *'ilm al-raml*, literally the "science of the sand".[9] Particular to China, Chinese divination developed practicing principles called *Yijing*, the Book of Changes. The *Yijing* provided several striking similarities to geomancy

5 "Geomancy," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Geomancy> (20 November 2010).
6 "Divination," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Divination> (20 November 2010).
7 Skinner, *Terrestrial Astrology,* p. 13
8 Ibid., p. 15
9 Ibid., p. 19

also known as *fengshui*, which will be discussed further in Chapters 2 and 3. Together with Buddhism and other Chinese beliefs, *fengshui* spread further to the Korean Peninsula and Japanese islands. *Pungsu* and the Japanese tem for *fengshui*, *kaso*, all mean literally "wind and water."

1.2.2 Practice of Geomancy

Geomancy is a mixture of patterns and themes that may occur also in dreams and visions that suggest that it is part of the subconscious mind of mankind rather than directly transmitted traditions. These patterns and shapes integrate with observations of the phenomena of earth and heavens, which have produced the worldwide concurrence of outward form and inner purpose found in geomancy. The seeking of cosmic power points on the surface of the earth and special places where the mind can expand into new levels of consciousness, and places where visions and transcendental states of prophecy may be experienced.[10]

Many aspects of geomancy may now superficially appear to be little more than practical measures taken to ensure the most favorable water supply or the best aspect of the sun. Other than to regard the subject as an early form of town planning or farm management is to miss the point, by viewing it through the eyes of the modern technological world view. Geomancy may be perceived as natural, supernatural, conscious, and unconscious. *Fengshui* is seen as an impression of luck, the emotional concepts of nature, and pseudo-sciences. We individually react to our perceptions differently from others; bringing our own conclusion and solutions to the situation.

There are many techniques of performing geomancy, which are expressed as the diversity of origins mentioned earlier. The earliest practice was inspecting the configurations made by scattered pebbles, the manipulation of handfuls of palm nuts or seeds, or the making of marks haphazardly in the ground with a stick. Divination by marking the earth or casting objects on the ground also developed into the interpretation of lines or dots made more or less haphazardly on paper with a pen or pencil.[11]

10 Pennick, T*he Ancient Science of Geomancy, Man in harmony with the earth*, p. 7
11 Skinner, *Terrestrial Astrology,* p. 1

1.2.3 Natural Aspects of Geomancy

Geomancy deals with the physical natural aspect of earth. Supernatural activities and behavior could be shown through the unconscious understanding of the art of geomancy. The early nomads left the land as they found it, spontaneously receiving whatever was given, similar to the Hawaiians. Like some modern dowsers, ancient people were able to directly experience the energies in the earth, and attributed them to the activity of the earth spirit. The places where these energies occurred became sites of special reverence, later to be incorporated as the active sites of sacred buildings.[12]

All living, breathing flora and fauna was also regarded as bestowing spirit and energy. An example of a natural object would be a tree. A tree's spirit was often invoked at meetings, both religious and secular, held in early times. The prominence of a tree, seen as a landmark and traditional use as a meeting-place, ensured continuity.[13]

Because trees in general were also seen as sacred, precious jewels and a gift to nature, it was considered a serious offense to injure or destroy one, as it holds spiritual powers. As we look around today in our cities and neighborhoods, a concrete jungle of buildings and cookie cutter houses consumes the terrain, leaving trees and plants (landscaping) an afterthought to incorporate in the planning of our cities and neighborhoods.

1.2.4 The Omphalos, Ha, *Qi*

The concept of the center of the world has occurred in different cultures all over the world. To the individual, the place where he or she is at any given time is the place, a point from which the observed world is centralized in the body, and the body has a physical location, so the world's spirit was thought of as centralized at a fixed position. This point acted as the centre, a point in which everything else revolved. The world omphalos, meaning "navel" is now generally applied to any divined geomantic center.[14]

The navel in Hawaiian terms is *piko*, which symbolizes the connection to our ancestors, or *'aina* (land) and each other. The Hawaiians envision a triple *piko*. Our *po'o* (head) is our *piko* where our *aumakua* (ancestor gods) hovers. This *piko* connects our spirit and with our ancestors. Secondly, our navel is our *piko* connecting us to with our current

12 Pennick, T*he Ancient Science of Geomancy, Man in harmony with the earth*, p. 12
13 *Ibid*., p. 19
14 *Ibid*., p. 44

generation of blood-kin. "*Pehea kou piko*?" translates to, "how is your navel?" and also means, "How are you and your whole family?" Our third *piko*, our genitals, is our visible bond with our decedents.[15]

The Hawaiian people also believed in a relationship between spirits and the *'aina* (the land), evoking a living spirit within all humans, plants and animals. These spirits are important beyond what the eyes cannot see, listen for things that are not said and recognizing what your *na'au* (gut instinct) already knows. Your *na'au* is identified as the center of wisdom, emotion, *mana*, and physical strength. *Ha*, the breath of life, specifically the exhale of one's breathe and is living within everyone. In traditional Hawaiian manners, an exchange of *ha* connects the greeting parties in shared presence and shared aloha.[16]

As will be discussed below, the concept of centre is crucially important in *fengshui* theories, while *qi* (*ch'i*) is frequently translated as a spiritual flow of energy. *Qi*, energy of the earth encompasses the understanding of the characteristics of various topographical and geographical features of landforms (hills, valleys, flat land, and undulating land); the influences of the physical environment factors on buildings are internally and externally obtaining the maximum comfort and complimentary of the physical environment.

15 Barbara Helynn Heard, "Beneathe the Surface of some Key Hawaiian Terms Used by Lomilomi Practitioners." I love Lomilomi. 2010, <http://www.lomilomi-massage.org/Lomilomi-spiritual-terms.html> (21 November 2010).

16 Ibid.

CHAPTER 2

2.1 *Fengshui's* Historical Roots

China is located on the largest continent, Asia, and spans 3,705,386 square miles at 50º latitude in the north to below 20º latitude south. To the east, alluvial plains and rivers valleys then followed by forbidding mountains, high plateaus, and deserts of Tibet and Xinjiang in the west.[17] Over one thousand million people, including 55 other ethnic groups, or "minority nationalities" call China their home. The largest ethnic group is comprised of the Han Chinese making up 91.5% of China's population.[18]

Figure 1: Map of China
http://mapoftheunitedstates.files.wordpress.com/2008/03/china_map.jpg?w=450

17 Harold M. Tanner, *China: A History* (USA, Indiana: Hackett Publishing Company, Inc., 2009), p. 7
18 Ibid.

The lay of the land has three major rivers and tributaries: Yellow River in the north, The Yangzi River in the center, and Xi (west) River in the south. China's land area is divided into the Central Plains, Yangzi Valley, Guagdong (Canton) Basin, and the Sichuan Basin. The division of North and South China is Qin (or Qinling) Mountain along the Han River until the river turns south and then cuts through the Huai River flowing into the Yellow Sea.[19] Northern China's climate is dry and cool, suitable for the cultivation of millet, barley wheat, and soybeans. In the south, the climate is moist due to heavier precipitation, which created an abundance of rivers and lakes. Thus irrigation for rice agriculture flourished. As it will be indicated: in Chapter 3, China's topography plays an important role in *fengshui*, both in compass and form school. The placement of the dwelling, near mountains and water are key aspects to bring good *qi* to the household.

2.1.1 Pre-history

The first man made his appearance in the area of modern China, according to the bones that were found in a cave of Chou-k'ou-tien south of *Peking*.[20] Currently, there is no knowledge of the length of time the *Peking* man may have inhabited the Far East, but his first traces were discovered a million years ago and flourished in 500,000 B.C.E.[21] Some anthropologists discovered that the *Peking* man and other *Homo erectus* are vastly different from the men of today, and must have been hunters, as they possessed simple stone implements and the knowledge of making fire.

The Palaeolithic Age began with hunters who used stone implements, which showed characteristics of European influences. They still bestowed their own traits needed for their daily usage. Many of the implements used in this area were made out of wood or bamboo, which that are still found among the non-Chinese tribes of the southwest and of South-East Asia.[22] Around 25,000 B.C.E. a new human type appeared in North-China, which was found in the same caves that the *Peking* man inhabited. Although this human was not Mongolian, he was been allied to the *Ainu*, a non-Mongol race still living in Northern Japan.

19 Tanner, *China: A History*, p. 8
20 Eberhard, *A History of China*, 8
21 Ibid., p. 9
22 Ibid.

Around 6000-5000 B.C.E. the Neolithic Age began in Northern China, with purely Mongoloid people and a new culture. Instead of being hunters like those in the Palaeolithic age, they were cattle breeders and agriculturists.[23] During this transformation, other parts of China began forming. Cultures of numerous inhabitants started to form independently and then later penetrated into other regions in China. According to Wolfram, China's history began between 4000 B.C.E. and 2700 B.C.E. with a succession of wise emperors who "invented" the elements of a civilization, such as clothing, the preparation of food, marriage, and a state system; they instructed their people in these elements, and so brought China to an astonishing high cultural level as early as in the third millennium B.C.E.[24] However, there was no trace of any high civilization in the third millennium B.C.E., and indeed, we can only speak of a real "Chinese Civilization" from 1300 B.C.E. onward.

2.1.2 Ancient era

The Xia Dynasty of China (2100 B.C.E. – 1600 B.C.E.) was the first Chinese Dynasty. The legendary *Yu* the Great established the Xia Dynasty. Tracing back into Chinese political history, the heroic early emperors, to the *Xia*, to succeeding dynasties created the idea of the Mandate of Heaven which only one dynasty can exist at a time. Since the Xia Dynasty was the beginning of a long chain of historical periods before the 13th century B.C.E., archaeological evidence such as pottery and shells were the only traceable ancestral information. This dynasty ended around 1600 B.C.E. as a consequence of the Battle of Mingtaio.[25]

The Shang Dynasty (c. 1600 – 1028 B.C.E.) was the earliest first Chinese empire to invent a written language and written system. The Lung-Shung Culture (*Tai, Yao*, and *Tunguses*), with elements of the *Hsia* culture (with Tibetan and Mongol and/or Turkish elements) was established.[26] The territory of Shang laid to the North-Western Honan, alongside the Shansi Mountains and extended into the plains. The Shang capital from c.1300 - 1028 B.C.E. was constructed of mud walls by the settlement of Lung-Shan people. The use of metal such as bronze was used to create weapons, vessels, and coins.

23 Eberhard, *A History of China*, p. 9
24 Ibid., p. 7
25 "History of China," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/History of China> (16 September 2010).
26 Ibid. 23, p. 19

Furthermore, arts, such as pottery had silk were developed. Weaving techniques also prevalent. Silk worms and other caterpillars were used, in addition to various plants fibers such as hemps. The Shang people were agriculturists, but implements were still rather primitive. Ordinary farmers primarily used wood and stone implements. Although bronze was available, it was expensive.

The Shang Dynasty attained an intellectual form of writing. Writing is a rudimentary form of the present day Chinese script, and like it a pictorial writing, but also makes use, as today, of many phonetic signs. Present day Chinese script is a rudimentary form of writing and used for pictorial writing and also for phonetic signs. Today, there are many characters that no longer exist. Nevertheless, there are more than 3,000 characters that remain in use. Of these, most of today's people can now read some 1,000 characters.[27] Through their writing abilities, the People of Shang were very expressive.

Religion was introduced with many nature deities, especially deities of fertility, all combined into a single god. The supreme god of official Shang worship was called Shang Ti. He was the god of vegetation who guided all growth and birth and was later conceived as a forefather of the races of mankind. The Shang Dynasty also believed that their ancestors their parents and grandparents – became divine when they died, and therefore each family started to worship their own ancestors. The most important ancestors to be worshipped were the deceased rulers and even dead ministers, as they represented a kind of intermediaries between man and the highest deity, *Shang Ti*. This type of practice of "ancestral worship", or ancestor reverencing became typical of later Chinese beliefs, Confucianism in particular. The Shang Dynasty came to an end in 1600 B.C.E when the last ruler had his big war, which lasted 260 days against the tribes in the southeast.

During the Zhou Dynasty (c.1028 – 257 B.C.E.).[28] Zhou people began to settle in the Yellow River valley, overrunning the territory of the Shang. They seemed to be ruled under a semi-feudal system. King Wu Wang moved into the east to create alliances with tribes in the area and build his army to defeat the *Shang* army. With success, Ruler Wu Wang captured the last emperor of the Shang and killed him. The king of Zhou invoked the concept of the Mandate of Heaven to legitimize his rule, a concept that would be

27 Eberhard, *A History of China*, 22
28 Ibid., p. 29

influential for every succeeding dynasty ever since in China.[29] Also, the first of many population migrations from north to south in Chinese history occurred during this period.

During the Spring and Autumn Period (772-476 B.C.E.), local military leaders used by the Zhou began to assert their powers and their situation became aggravated by invasions of other peoples from the northwest, such as the Qin.[30] The capital of Zhou was moved to the east of Luoyang, marking the next phase of the Zhou Dynasty. The two main philosophies, Confucianism and Taoism (Daoism) evolved in the later Zhou period (771-221 B.C.E.), absorbing many ingredients of the early mythology and merged with each other as well as later with Buddhism.[31] These philosophies began to play significant roles in the lives of the citizens of China, and bestowed in them a way of life. These two beliefs shared many similarities, such as the two cosmic essences, *yin* and *yang*, also formed the basis for *fengshui*.

At the end of this period, the power of the central Zhou diminished, which divided China into hundreds of states, some of them only as large as a village with a fort. Following this era a period of uncertainty prevailed as the warlords fought for power during the Warring States (476-221 B.C.E.).[32] The final expansion began during the reign of Ying Zheng, the King of Qin. Ying Zheng was able to unify six other powers, and further annexations in the modern regions of Zhejiang, Fujian, Guangsong, and Guangxi in 214 B.C.E. He then proclaimed himself, Qin Shi Huang or Shih Huang –di, also known as the "First Emperor".

2.1.3 Imperial era

The Qin Dynasty (c. 221-206 B.C.E.) is referred to as the first Imperial China. As the First Emperor, Qin Shi Huang-di ruled with an iron fist. He contributed to the great progress of building and construction, organizing China into a hierarchy of countries and prefectures under governmental control. He also commissioned large-scaled irrigation and extensive construction works. In 214 B.C.E. "the Great Wall" started to be built to

29 "History of China," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/History of China> (16 September 2010).

30 Ibid.

31 Marja Sarvimäki, *Structures, Symbols and Meanings, Chinese and Korean Influence on Japanese Architecture* (Helsinki, 2003), p. 105

32 Evelyn Lip, *Feng Shui Environments of Power A Study of Chinese Architecture* (Great Britain: Academy Editions, 1995), p. 11

defend the country against attacks and invasions from the Mongols.[33] Another contribution included the concept of a centralized government, and the unification of the legal code, standardization of the written language, measurement, and currency of China. This set the road for the next Emperor of the Han Dynasty.

The Han Dynasty (202B.C.E.- C.E. 220) was the first ever dynasty to embrace the philosophy of Confucianism, which then became the ideological basis at Chinese Imperial rule until the end of Imperial Dynasties of China. During this dynasty, many areas of art and sciences witnessed great advances. With a growing empire the Chinese were pushing back into the steppes of modern Inner Mongolia, Xiongnu, and modern areas of Gansu, Ningxia, and Qinghai. The expansion also created the first open trading connection between China and the West, along the Silk Road.[34] During the later part of the Han Dynasty, Buddhism spread to China from India mainly through the Silk Road, including its waterway routes along the southeast Asian coast.

Following this dynasty came the Wei and Jin Period (C.E. 265-420), characterized by a gradual decentralization of the state that had existed during the Qin and Han dynasties, and an increase in the power of great families. Although the Jin Dynasty reunified the Three Kingdoms in 280, this structure was essentially the same until the Wu Hu uprising. Wu Hu Period (C.E. 304-439) made way for more Han Chinese migration to the south of the Yangtze River. Many ethnic groups were involved, including ancestors of the Turks, Mongols, and Tibetans, of whom most were nomadic people.

The Sui Dynasty (C.E. 589-618), managed to reunite the country in 589 after nearly four centuries of political fragmentation. The Sui centralized China together again and set up many institutions that were to be adopted by a successor, the Tang. The Sui Dynasty was short lived because, like the Qin, the government overused their resources and collapsed.[35]

The Tang Dynasty (C.E. 618-906) had a new emperor on June 18, 618. The establishment of the Tang Dynasty opened doors and developed new prosperity and innovations in arts, literature and technology. Buddhism became the predominant religion

33 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 11
34 "History of China," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/History of China> (16 September 2010).
35 Ibid.

and was adopted by the imperial family and many commoners.[36] During this dynasty, progression of expanding its territory grew, as well as the population through increased trading with other European countries by the Silk Road. Also, the trade route from the west to south promoted more foreign merchants to settle in China. An expansion of cultural influences of the Tang dynasty imposed them over the surrounding countries such as Japan, Korea, and Vietnam. Scholars complied a rich variety of historical literature of encyclopedias and geographical works.[37] However, although Tang China was a centralized and prosperous dynasty, Chinese political institutions started to degenerate in its parts. In 907 the independent local warlords of several uprising ended the Tang Dynasty in 907.[38] The Tang and Han Dynasties came to an end, although they will both be recognized as the most prosperous periods of recorded Chinese history due to the contribution the dynasties shared with the world.

The following Five Dynasties and Ten Kingdoms (C.E. 907-960) were characterized by a multi-state system, in which five regimes succeeded into one and rapidly took control of the old Imperial heartland in northern China. At the same time this was happening, ten more stable regimes occupied sections of southern and western China.

Song, Liao, Jin and Western Xia Dynasties (C.E. 960-1234)[39], were four dynasties trying to gain power over each other to strengthen their political and economic establishment for the next centuries. Out of the four dynasties, the Song Dynasty reached the highest point in science and technology, with innovative scholar-officials. An enormous amount of literature was produced and the culture and the arts flourished.

The Yuan Dynasty (C.E. 1271-1368) was a result of long bloody wars where firearms played an important role. At the end of these wars, the *Pax Mongolica*, adventurous Westerners, such as Marco Polo traveled all the way to China, and reported back to Europe about the Chinese and their culture. Gengis Khan's grandson, Kublai Khan, wanted to adopt the customs and therefore ruled the Yuan Dynasty from Beijing as the capital,

36 "History of China," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/History of China> (16 September 2010).
37 "Tang Dynasty," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Tang_Dynasty> (27 October 2010).
38 Sarvimäki, *Structures, Symbols and Meanings, Chinese and Korean Influence on Japanese Architecture*, p. 63
39 Ibid. 36

formerly called Dadu. The population of China had decreased due to the Bubonic Plague. The 14th century epidemic of the plague, the Black Death is estimated to have killed 30% of the population.

The Ming Dynasty overthrew the Yuan Dynasty in 1368 and again established a pure Han Chinese Rule from C.E.1368-1644, when urbanization increased as the population of China grew. Large urban centers, such as Nanjing and Beijing, contributed to the growth of the private industry.[40] Small-scaled industries developed by specializing in paper, silk, cotton, and porcelain goods. Trading of goods to the outside world increased dramatically. In the south of China, new crops were widely cultivated and industries such as those producing porcelain and textiles flourished. The Great Wall was completed within this dynasty to protect China from further foreign invasions by the Mongols and Manchus in the northwest and North respectively.

However, the Manchus eventually over took the *Ming* Dynasty and founded the Qing Dynasty (1644-1911). During this dynasty, Manchus adopted the Confucian norms of traditional Chinese government in their rule of China, also enforcing the Manchu-style of fashion and hairstyles. The Qing military forces grew with the organization of a system of "Eight Banners", a basic framework of military conduct of order. Within the early 19th century, Qing control weakened. Britain's desire to continue its opium trade with China collided with imperial edicts, prohibiting the addictive drug. The First Opium War erupted in 1840.[41] Hong Kong was then ceded to Britain in 1842 under the Treaty of Nanking.

2.1.4 Modern era

As the Qing Dynasty showed signs of weakness, a new modern era began by young officials, military officers, and students who were inspired by the revolutionary ideas of Sun Yat-sen, founder and the first president of the Republic of China.

One result was that slavery in China abolished in 1910. In the 1920's, Sun Yat-sen established a revolutionary base in south China, and his mission was to unite the fragmented nation into a whole. Five years later he passed away from cancer and his protégé, Chiang Kai-shek, seized control of the Kuomintang (Nationalist Party or KMT)

40 "History of China," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/History of China> (16 September 2010).

41 Ibid.

and succeeded in bringing most of south and central China under its rule in a military campaign known as the Northern Expedition.[42] Mao Zedong became the new leader for the Communist Party of China (CPC). The two parties, the KMT and the evolving communists party, united to oppose the Japanese in 1937, until Japan's defeat in the end of the World War II in 1945. After the surrender of the Japanese, the CPC gained majority of the control and occupied most of the county in the so-called "Long March." With this victory, they proclaimed to be the People's Republic of China on October 1, 1949.

In terms of Chinese culture, however, the Maoist era was devastating, particularly during the Cultural Revolution (1966-76). Millions of people were persecuted and/or sent to labor camps, while an unprecedented amount of historical books, paintings, buildings, and other cultural artifacts were destroyed in an attempt to throw out "the old thoughts", including *fengshui*. Its practice became dangerous and one reason for persecution. With the "open-doors policy" that was launched by Deng Xiaping in the late 1970's the politics became more tolerant, of which was one sign the revival of *fengshui* even in the Republic of China.

In today's world, *fengshui* is not only practiced by the Chinese, but also by Westerners, since its philosophies and principles of *fengshui* have gained popularity in the West. On the other hand, much of the knowledge behind *fengshui* has been lost in translation, and no attention is paid to its origins. Due to the lack of respect toward *fengshui* practices in the West, it has been looked upon as an aspect of interior decorating. This concept is a new age of "energy" scams with metaphysical products to add to your home and improve your health and well-being, and has been seen more as a superstition rather than a tool for living in harmony with nature (environmental well-being). I, on the other hand, believe in concept of *fengshui* and the common sense of living with nature and encompassing the fulfillment of improvement of health, good fortune, and prosperity.

42 "History of China," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/History of China> (16 September 2010).

2.2 Belief Systems & Chinese Thoughts
2.2.1 Confucianism

Figure 2: Portait of Confucius
http://www.tuvy.com/blog/2009/07/confucius-quotes/

The great philosopher of the *Zhou* Dynasty was Confucius (500 B.C.E.) and represented the organization of two great philosophies.

1. The one tr*ying* to reconcile individualism with institutionism, the other demanding a complete reversal of the existing order and a return to the 'natural state'
2. These two attitudes were represented by what is known as Positivism and Negativism (*yin* and *yang*).[43]

Confucian philosophy made an impact on the people and rulers of ancient China. Confucianism spread and covered political and ethical principles in the East and Southeast Asia. Confucius' fundamental teachings consisted of a moral code centered on adherence to the Will of Heaven, harmony of nature, and behaving according to De (virtues). The followers of Confucius worshipped heaven, earth, sun, moon, stars, hills, and rivers – indeed, all discernible elements of the natural world.[44] Confucius firmly believed that harmony within the court would result in a prosperous and powerful reign. Obedience of authority and harmony in the family was strongly based on the Confucian philosophy that within the family and with nature this would bring good fortune and health to the household. Inner harmony and moderation of one's self could develop a well-balanced character and it is the aim of self-cultivation.[45] Attuning to heaven came from harmony with nature, and obedience to elders brought harmony to the family, which could be said to be most important of Confucius's teachings. This also influenced *fengshui* principles.

43 Laurence G.Liu, *Chinese Architecture,* (London, Academy Editions, 1989), p. 19
44 Ibid.
45 Ibid.

Confucius related every aspect of human activity to the word "Rite" or "Right" (in Chinese, both are pronounced *Li*), which represented his moral ideas governing the categories of daily life, regulating court rituals and directing art, literature and architecture.[46]

2.2.2 Taoism (Daoism)

Forms of Daoism can be traced back to Lao-Tzu, the legendary founder of Daosim. Although Confucianism was most popular as a social theory, Daoism became relevant in China's religious beliefs. Daoism focuses on the forces of nature and popular pluralism by adoring equality and freedom.[47] *Tao* literally means "the way." Taoists seek the harmony with the natural "way" and an identity with the cosmos; poets, artists, and philosophers alike all yearned to fit into the grand scheme of the harmony and immortality of nature. The three main components that make up Taoism are compassion, moderation, and humility.[48] Taoists believe that man is just a microcosm for the universe and the body is tied directly into the Chinese five elements, which also was applied to *fengshui*.

2.2.3 Buddhism

The roots of Buddhism originated in Ancient India during the second half of the first millennium B.C.E. that then spread into East and Central Asia. Buddhism is a product of many varieties of beliefs and practices, in China including philosophies of Confucianism and Daoism. Buddha, the "Enlightened One," himself lived and taught in the northeastern Indian subcontinent between the 6th and 4th centuries B.C.E. His ultimate goal was to enlighten and share the insights to end suffering and achieve nirvana, which is seen as a cycle of suffering and rebirth. The way to eliminate suffering begins with understanding the true nature of the world.

Confucianism, Taoism (Daoism), and Buddhism began to borrow ideas from each other until a new synthesis was reached, Spiritual Institutionism. All three philosophical beliefs are very similar in respect of being one with nature and our environment. Our personal existence affects the surrounding habitat of the environment, and instead of working against nature we should work and incorporate nature into our thoughts.

46 Liu, *Chinese Architecture*, p. 19
47 Sarvimäki, *Structures, Symbols and Meanings, Chinese and Korean Influence on Japanese Architecture*, p. 105
48 "Taoism," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Taoism> (23 November 2010).

2.3 Chinese Architecture

Ever since the first known permanent settlements in the Yellow River and Yangze River valleys, dating back at least to 6000 B.C.E., China has developed its own unique architecture, just as many other nations produced characteristically unique national architectural forms. All nations' political, social, and cultural environments, as well as historical and geographical backgrounds of each specific region or nation influence people inhabiting different areas of the world. These influences gradually form their particular life and culture, which are then translated into specific spatial forms of buildings and cities. In terms of architecture, the most unique was the planning, construction of buildings, and the application of decorative motifs, as well as China's long historical development. The other countries surrounding and in contact with China have mutually fed, nourished, and strengthened the architecture of China.

A large country with such a long history inevitably produces many myths, mystical figures, politicians, philosophers and schools of philosophy. For thousands of years, Chinese philosophical concepts, firmly rooted in the minds of the people, continually grew and developed, influencing thinking and governing behavior. In ancient China, religion and myth, philosophy and politics, science and superstition, humanity and ritual were constantly confronting and complementing each other.[49] The tectonic and artistic characteristics of classical Chinese architecture include the harmonious relationship between the parts and the whole, with emphasis on the feel of the materials and the unity between material and structure. The effort to create a place for the coexistence of people also exerts sympathy with nature and conveys symbolic meanings and vocabulary. This marriage of the physical and the symbolic aspects are the rudimentary elements of all great architecture, and become the metaphysical resource for each advancing stage of development.[50]

49 Liu, *Chinese Architecture*, p. 15
50 Ibid.

2.3.1 Built Environment

The evolution of Chinese architecture began with two factors: continuity and assimilation. According to Liu, within continuity "the Chinese cosmology has been heavy influenced by Daoism and Confucian philosophy. Chinese architectural style involves the hierarchy of class and seniority, concept of 'sky does not change, so everything does not change', natural phenomena (hills, rivers, trees), and the feudalistic system grown from and adapted to the sky."[51] The 19th century was a time of exchanging of ideas and cultural relationships with outside parties. Although these acts were taking place, the principles and teachings of Confucian theories were being forgotten. Many concepts such as a humane architecture, utilizing architectural forms to express existential meaning, and adaption to, and congruity with, nature and the landscape, could be utilized today to create an architectural balance.

Throughout the development of Chinese architecture, the cultural influences of the outside world have become more apparent in architectural types and forms, and decorative art. Assimilation was not only an architectural phenomenon, but also a characteristic of the nation's ability to absorb ethnic minorities and conquerors.[52] Throughout its history, China has been invaded and occupied by many diverse foreign forces; the Tobas, Mongols, and Manchus. With these new foreign forces, the culture was slightly altered, but maintained its individual integrity, changing very little during several millennia. The development of character and essence of Chinese architectural heritage, provided a tool to interpret the past, serve the present, and define the future.

Chinese architectural characteristics can be described and classified into the following elements: the environment, site planning, timber frame construction, bracketing system, roof forms, roof section, roof decoration, color scheme, wall, columns, tiles, windows, doors, and openings, podiums, and balustrades.[53] Throughout ancient times, the surrounding environment and its effects on a building have been very important to the Chinese. It was established that the building must be sited and constructed in harmony with the natural setting of maximize the benefits of the site.[54]

51 Liu, *Chinese Architecture,* p. 24
52 Ibid., p. 25
53 Ibid., p. 23
54 Ibid.

The surroundings environment and its effects upon a building could create positive or negative foreseen effects, which is very important to the Chinese. The term environmental design (*xiang di)* is also referred as *kanyu* or *fengshui*, which encompasses the idea that each building must be designed with the reference of the *yin* and *yang* concepts and elements on or surrounding the site. The organization and planning of spaces is very crucial and is taken seriously. For example, the courtyard has always played a significant role in Chinese architecture and serves multiple purposes of providing privacy, ventilation, and light. The amount of courtyards also represents the occupant's social status and the importance of the building itself.

2.3.2 Construction Methods

Over the centuries, China had an abundance of timber as a resource for its main building material for low-rise buildings. With natural disasters, such as earthquakes and tremors, timber was most suitable for the design of flexible joints of buildings. The three basic building techniques are:[55]

1. Post and beam system (Beam-frame system)
2. The column and tie beam system
3. The log cabin system

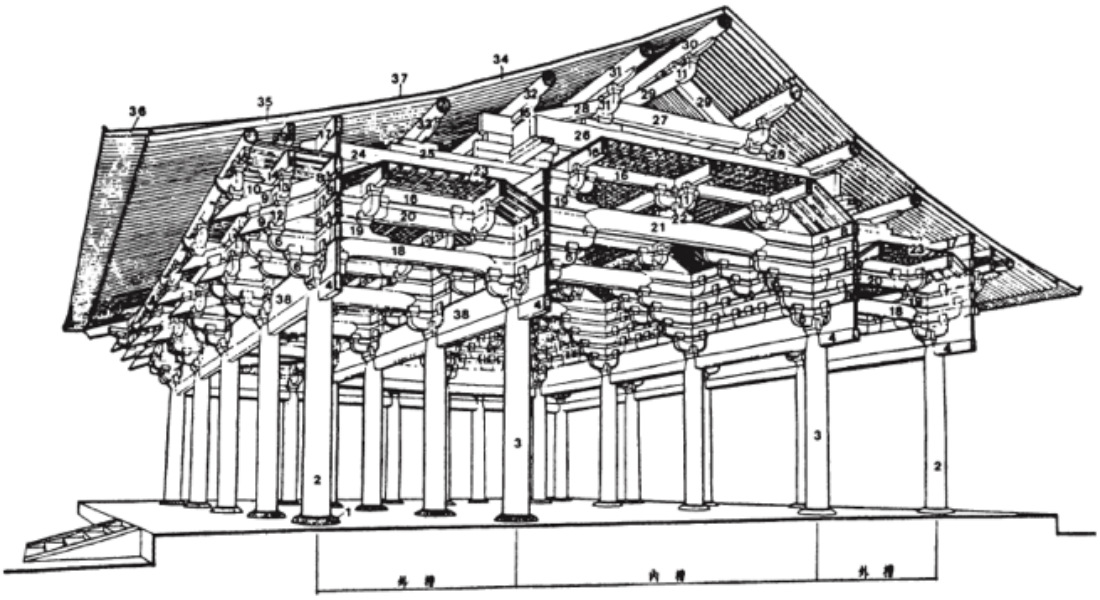
Solid masonry podiums consisting of rectangular bays of structural posts tied by longitudinal beams would be the traditional Chinese structural framework. Beams and posts supported a series of structural posts tied by longitudinal beams. The struts support the rafters, the tiling boarding and the battens of the roof. This system of construction is flexible and practical, as the profile and pitch of the roof can be determined by adjusting the levels of the longitudinal beams.

2.3.3 *Dougong* "Bracket Complex" and Roof Forms

An important element in traditional Chinese architecture is the bracket complex. This is a unique structural element of interlocking wooden brackets called the *dougong*,

55 Liu, *Chinese Architecture,* p. 25

meaning, "block arm". During the late centuries B.C.E. the *dougong* first appeared in buildings and evolved into a structural network that joined pillars and columns to the framework of the roof. *Dougong* was widely used in ancient China during the Spring and Autumn Period (770–476 B.C.E) and developed into a complex set of interlocking parts by its peak in the Tang and Song periods. The pieces are fit together by joinery alone without glue or fasteners, due to the precision and quality of the carpentry.[56] After the Song Dynasty, brackets and bracket sets became merely ornamental rather than structural.



From *Chinese Traditional Architecture* by Nancy Shatzman Steinhardt.
1984: China Institute in America

Figure 3: A drawing of a dougong bracket system
[http://www.richardwiborg.com/Chinese_Dou_Gong_Brackets_files/Picture%2017.png]

The Chinese manual, *Yingzao Fashi*, published in 1103 A.D. records the *dougong* or bracket system and its four standard units of measurements:

1. *fen* = about 1 centimetre
2. *cai* = 15 *fen*
3. *qi* = 6 *fen*
4. *tiao* = about 30 *fen*[57]

56 "Dougong," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Dougong> (23 November 2010).
57 Liu, *Chinese Architecture*, p. 25

Every proportion of each part of the *dougong* is measured in multiples of *fen*. There are two types of *dougong*: *shangyan* and *xiayan*. The diameter of the column that supports the *dougong* varies from the column base. The *dougong* spreads out in four directions, carr*ying* smaller brackets that may support others that spread out; thus the whole bracketing system can be from one *cai* plus one *qi*, to three *cai*.[58] These principles changed over times (*see. 2.3.5, Columns, Walls, Ceilings*) but in general the functions of *dougong* were to:

1. give support to the large overhangs of verge and eaves giving ample sun shading and weather protection to the building.
2. integrate the structural elements such as the beam-frame and column with decorative elements.
3. express the importance, as it was allowed only in imperial buildings and temples, hence functioning as a kind of "status symbol".

During the Han Dynasty, basic roof forms were created and evolved into more variations of roof forms in the Qing Dynasty. There are four types of traditional roof forms: gable, hipped, half-hipped/half gabled, pyramidal. These four types vary in forms of two - or three - tiered roofs or with the combination of two or more basic roof forms. Religious and/or imperial palatial structures used multi-tiered hipped roofs. Important buildings used half-hipped/half gabled. Pyramidal roofs are built in various forms of geometry: square, round, pentagonal, hexagonal, and octagonal. Conical roofs were used for religious buildings, square roofs were used for pavilions, and octagonal roofs were used for pagodas. As a generalization in North China the straight roof ridge and the gable end corner rib tilt slightly upwards.[59] The straight inclined roofs were the most economical type of roofing and prevalent in commoner architectures. In Central China there is also a straight roof ridge but the gable end roof rib tilts up, while in South China the roof ridge is curved and the roof corner ribs tilt and curve upwards and are highly decorated with ceramic figurines. Roofs with two or more sections of incline were used in higher-class constructions, for the

58 Liu, *Chinese Architecture,* p. 25
59 Ibid., p. 27

wealthy commoners and palaces. Some roof forms would have a sweeping curvature that rises up at the corners, which are usually reserved for temples and places. There were some exceptions to these sweeping roof styles for the homes of the wealthy.

2.3.4 Decoration and Color Schemes

Most of these traditional Chinese buildings have decorative roof ornaments on the ridges and/or corner ribs. These are usually water-born animals or plants, as it was believed that they protect the timber building against fires. In general, the symbolism of decoration followed the aforementioned Chinese cosmological principles. For religious buildings, dancing dragon figurines symbolizing active *yang* forces are flanked by the pearl, which is a *yin* element. The chimera (fire-breathing/ imaginary monster), the lion, the horse, and the unicorn represent *yang* and the phoenix and floral sculptures symbolizes *yin*.[60]

Figure 4: An image of Dougong Bracket [http://en.wikipedia.org/wiki/Wikipedia:Picture_of_the_day/August_2008]

Moreover, in Chinese architecture, the use of certain colors was based on the cosmologic theories, instead of being based solely on the opinion that a world without color would be boring. Bright color schemes for buildings were developed from the *Chunqiu* Era to the *Ming* Dynasty. Paint colors were made from various materials such as minerals and plants and would be applied to buildings and building elements such as columns, beams, struts, roof tiles, and decorative motifs. The Chinese also associated certain colors with the Five Elements- significances and symbolic value:[61]

60 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 27
61 Ibid., p. 29

1. Green – Wood Element, growth, and represents longevity, soothing effects, represent harmony
2. Red – Fire Element, bright and auspicious color, warmth, represents good fortune and happiness
3. Yellow – Earth Element, growth, the Royal color used by the emperors, power, and authority
4. Black – Water Element, darkness
5. White – Metal Element, mourning

+ These five categories are discussed in detail in 3.1.4 Five Elements, Ten Stems, Twelve Branches

2.3.5 Columns, Walls, Ceilings

In a post-and-lintel construction, columns are naturally key structural elements and are constructed of hardwood or heavy timber. Consistence of the placement of columns is traditional with each column given a name depending on its position within the building.[62] Main columns in significant Chinese buildings are decorated with gilded patterns of *yin* and *yang*. Looking at the columns in section, the columns maybe square, round, or polygonal (5-8 sided), rectangular, composite in section.

The proportional ratio of the height and the cross-sectional dimension of the column is designed to give the column a good sense of proportion. The *Tang* dynasty proportional ratio of height to width was 8:1 to 9:1, the *Song* dynasty's the column became more slender 11:1 to 14:1, and the Ming and Qing dynasty's changed to 9:1 to 11:1.[63] At the base of the columns, a stone is used to raise the columns off the ground for damp proofing and to protect the columns from being damaged.

The walls are typically non-structural only because the structural supports are the columns, beams, beams-frames, and brackets supporting the floors and roofs.[64] The only reasons for walls were to enclose spaces for privacy and climatic conditions, rather than for structural support. In the event of an earthquake, the walls would collapse, but flexible timber frames of posts and beams are more likely to withstand the earth's movement than heavy masonry wall. Some masonry walls were sometimes used to support the roof ends

62 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 31
63 Ibid.
64 Ibid.

and were built from bricks, stones, or mud.

The ceilings of important buildings are highly decorative, which were expressed in two different types. The first type is called *tianhua*, which is a drop ceiling created by battens or boarding. The second type is called *zaojing*, which is applied on a coffered ceiling of a palace to give significant symbolism and meaning to the interior space. Patterns and decorative motifs ranging from leaf scrolls to fruits and flowers would be articulated on materials of bamboo, hemp cloth, paper and wood. Each ceiling would have a theme; such as the following pomegranates symbolizing posterity, peonies symbolizing beauty, lotuses symbolizing uprightness, scrollwork symbolizing scholarships, phoenixes symbolizing *yin* qualities and power, cranes symbolizing longevity, and dragons symbolizing *yang* power.[65]

65 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 35

CHAPTER 3

3.1 Chinese Geomancy "*Fengshui*"

Traditional architecture and other cultural facts are reflected ideas of cosmic order and embody our values and social reality. The ancients assessed all probable consequences of maintaining the balance of nature and designed for the relationship between a building and the cosmos. Out of Greek geometry, Western culture fashioned the concept of "sacred geometry" to supply a spiritual plan for monumental architecture.[66] As discussed above, the Chinese developed their own cosmology, including geomancy, based on *Yijing,* the *Book of Changes*, and rooted in the philosophies of Confucianism and Taoism (Daoism). The traditional worldview of Chinese culture supplies a profound cosmology for generating symbolism. Local influences (*xingqi*), dynamic powers of what today might be called the *genius loci* or "*spirit*" of place, were determined before construction in accordance with the topography of local terrain and the stars and planets wheeling overhead.

The scientific studies advise us that the natural world does impact our mental health, unconsciously. That is why pets, ponds, animals, and views of parks and waves reduce our blood pressure and lower the production of adrenaline, while the amount of vegetation around us decreases crime rates. We also prefer the mechanics and infrastructure of modern living to be quiet and unobtrusive. According to Cate Bramble,

66 Cate Bramble, *Architect's Guide to Feng Shui*, (Oxford, UK: Architectural Press, 2003), p. 8

fengshui's ideal conditions for human happiness and well-being are programmed into our genes. He suggests that traditional methods of *fengshui* supply a creative problem-solving system to analyze the built and natural environments and to better understand and improve the quality of life. This traditional, sustainable philosophy provides time-honored techniques of environmental protection.[67]

Fengshui

Figure 5: the Chinese characters for *fengshui.* Rossbach, 1987

3.1.1 *Fengshui* v.s. *Kanyu*

What is *fengshui*? While some would say it is an impression of generalized and systematic methods of strengthening luck and prosperity, others would say it is based on this emotional concept of nature, or that it is a pseudo-science. One may suspect only that *fengshui* is no more systematic than a collection of omens, on the same level as walking under a ladder or having a black cat cross one's path. The Chinese, of course, have their share of such omens too, while *fengshui* purports to a way of manipulating luck or changing one's destiny.[68] If *fengshui* was no more than what our common sense and natural instincts teach us, Chinese *fengshui* would be no such puzzle to us. The Chinese have made *fengshui* a black art, and those that are proficient in this art and derive their livelihood from it, find it to their advantage to make the same mystery of it.[69]

Fengshui is a form of a universal geomancy discussed in Chapter 1, which is defined as the art of divining the future for good or ill fortune, from the figure suggested by dots or lines placed at random on the earth's surface.[70] Among the many factors influencing the physical aspects of vernacular architecture, the most important are socio-

67 Bramble, *Architect's Guide to Feng Shui*, p.13
68 Stephen Feuchtwang, *An Anthropological Analysis of Chinese Geomancy* (Bangkok, Thailand: White Lotus Co., Ltd., 2002), p. 35
69 Ernest John Eitel, *Feng Shui: or the Rudiments of Natural Science in China* (Great Britain: Peniacle Books, 1979), p. 4
70 Evelyn Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy* (Singapore: Times Books International, 1987), p. 2

cultural factors, human relationships with nature, human relationships with one another, and human aspirations.[71] *Fengshui* is also a study of how people relate to the land and the natural environment, and has always been the basis of Chinese cosmology and philosophy. It is the art of placing, siting, and orienting a building so that the building is in harmony with all elements that surrounds it. Furthermore, it is the art of finding the balance in nature, and finding harmony in the home and working environment.[72]

The Encyclopedia Sinica gives the following definition: "*Fengshui* – wind and water, the outward and visible signs of celestial *yang* and *yin;* the art of adapting the residence of the living and the dead so as the harmonize with the cosmic breath."[73] Eitel describes that *Fengshui* is indicated by the ideograms "wind" and "water," "because it's a thing like wind; which you cannot comprehend, and like water, which you cannot grasp."[74] *Fengshui* is also considered a pseudo-science of climatology and geomorphology because it is related to all the geographical features of the area, and connected with buildings, the sititng of tombs, and other architectural features. The elements of wind and air of the mountains and hills with the streams and rain are compositions of the natural environment, which we have come to recognize for its beauty and power.

The art of geomancy became a professional skill during the Han Dynasty. The *fengshui* specialist, *Kan-yu jia,* are a professional practitioner/master/expert in this method. The word *kan-yu* is related to geographical and astronomical studies using a basis to predict the good and bad omens of events. *Kan-yu* is referred to as *di-li*, which means geography.[75] *Kan-yu* is also abstract term used to represent the pseudo-physical science of climatology and geophysics.[76] *"Kay-nu* is the understanding of how the geographical features of a site and its topography affect buildings internally and externally. *Kan-yu* is the traditional time-calculation aspect of *fengshui*. It was such an integral part of Chinese architecture that the principles and rudiments of buildings were based on its concepts of symmetry, balance, hierarchy of height, walled enclosures and auspicious orientation.[77]

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71 Ronald Knapp, *Asia's Old Dwellings: Tradition, Resilience, and Change* (New York: Oxford University Press, Inc., 2003), p. 322
72 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 61
73 Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy*, p. 5
74 Eitel, *Feng Shui-or the Rudiments of Natural Science in China*, p. 3
75 Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy*, p. 3
76 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 61
77 Ibid.

Kan-yu involves the understanding of the Confucian classics such as the *Yijing* (Book of Changes) and the meaning of *yin* and *yang* (the theory of negative and positive forces): the application of Chinese symbolism on buildings, the knowledge of the theory of magnetism and the understanding of the working of ecology, the grasp of the art of landscaping and garden design as well as the understanding of the technical skill in treating the interior and exterior of a building.[78]

It was believed that if a house is properly located, the inhabitants will prosper in wealth gained through doing business, or in status achieved by being a government official, by extension, the proper siting of a village would allow the entire village to share in the resultant good fortune. This is why man believe that the *fengshui* of villages must be must be guarded at all cost from tampering or destruction, since it is a representation of the well being of all those living within the village.[79]

3.1.2 Form School and Compass School

From the ancient Chinese cosmology and philosophies, two major *fengshui* schools gradually evolved: the Form or Shape School, which looks primarily at the physical characteristics of the terrain, and the Direction or Compass School, which relies on the geomantic compass and complicated calculations.

The school of Forms, Form School, or Shape School is also called *Jiangxi* School, according to which, the cosmic breath is believed to reside in the elements of the physical landscape. The hills are seen as the carriers of good *qi* in the form of a long dragon coming to dwell at the desired site.[80] Because of concerns with the "influence forms and outlines" (*jing shi*)[81], many *fengshui* experts consider form and shape analysis to be the foremost study of environmental influences, including mountains, hills, and water-courses, taking primary notice of the surrounding land forms and configurations, both the natural and man-made. Without assessing form and shape, no genuine understanding of a site's *fengshui* is possible, which is very much reminiscent and suitable of today's contemporary site analysis and its importance in design today as well. The objective of *fengshui* is to

78 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 62
79 Knapp, *Asia's Old Dwellings: Tradition, Resilience, and Change*, p. 322
80 Ibid.
81 Ole Brunn, *Fengshui in China: Geomantic Divination Between State Orthodoxy and Popular Religion* (Honolulu: University of Hawai'i Press, 2003), p. 5

gently place structure and entities in the natural flow of the land.[82]

Besides the hills, there should also be a watercourse running in front of the lair, which is said to also bring good fortune to the site.[83] According to traditional rules of *fengshui,* these locations have highly suitable microclimates. The ancient *fengshui* experts said these locations provide the ability to accumulate creative potential. Such positioning also promotes the integration of human construction into the natural environment as it enhances carrying capacity.[84]

An assessment of form and shape for a site consists of the analysis of three components:

1. Physical environment: landmass, open space, and water
2. Topography: specific effects on sites of the positions and flow of water and land
3. Directional and vicinity influences: microclimate analysis and may encompass *Ba Zhai* (a calculation technique)[85]

Figure 6: Ideal placement of a house according to *fengshui,* hills or mountains should back a site to form a protective shield. Strem or waterway is in front of the home. Lip, 1986.

82 Bramble, *Architect's Guide to Feng Shui*, p. 72
83 Knapp, *Asia's Old Dwellings: Tradition, Resilience, and Change*, p. 322
84 Ibid. 82, p. 72
85 Ibid.

The form and shape school theory combines the ideas of *yin* and *yang*, the five-element theory, topography, calendar science (astrology), and astronomy. It correlates the 24 solar periods with cardinal and inter-cardinal directions. The practitioner analyzes mountains by shape position and taxonomy. Any bodies of water are likewise noted and analyzed.[86] The entrance of the watercourse into the site, known as *shang shuikuo* or "upper water mouth", must be carefully protected by invasion of bad *qi*. At the exit of the watercourse, known as *xia shuikou* or "lower water mouth", a bridge, a *fengshui* wood, and/or a temple are commonly found to "lock in" the propitious *qi* at the site and prevent it from flowing out. In construction manuals, *fengshui* principles are simplified into diagrams showing the auspicious or undesirable effects of placing a house close to different landscape elements such as a rock, river, tree, or fork in the road.[87]

Traditionally, Direction or Compass School is considered by many and is most prevalent method of practice *fengshui*, emphasizing the importance of astrological and the moment and date of birth. Compass School embodies the cardinal directions rather like Shape/Form School. There are many variations that have formed from compass school, called Black Sect School or Black Hat Sect School, which is said be westernized.[88] *Fengshui* masters uses a *luopan*, a compass which is discussed in 3.1.3. Luopan or Geomancer's compass. From this compass, it will give the master valuable information's regarding orientation of space, site, and objects. A master of the Compass School in determining the best location and orientation for a grave or a dwelling. In Compass School, the *Kan*, or Path in Life, portion of the octagon is always placed to magnetic north to determine how to orient the individual's front door, furniture, and other elements of life based on the person's most favorable direction. [89]

86 Bramble, *Architect's Guide to Feng Shui*, p. 73
87 Knapp, *Asia's Old Dwellings: Tradition, Resilience, and Change*, p. 323
88 Vincent Smith and Barbara Lyons Stewart, *Feng shui: a practical guide for architects and designers.* (Chicago: AEC Education, 2006), p. 6
89 Ibid., p. 5

3.1.3 *Luopan* or Geomancer's Compass

Figure 7: Geomancer's compass, *Luopan*
http://www.fengshuiwellbeing.com/liupan.png

Luopan is the Geomancer's compass for the divination of orientations of buildings and tombstones. The magnetic field measured by a *Luopan*, the main field of Earth, actually consists of several magnetic fields produced by a variety of overlapping sources, and it extends tens of thousands of kilometers into space.[90] A simple *luopan* has as few as five concentric circles of Chinese characters, while a complicated one has a many as thirty-four. Most are made from lacquered wood; the latest model has a metal casing or finish. The disc is set into a square lacquered base; cheaper ones have a plastic base. The background of the disc is black and the Chinese characters are in red or gold. A mariner's compass with a floating needle is in the centre under a piece of glass.[91] Even if many *fengshui* principles are the same in Form and Compass Schools, the latter emphasizes the cardinal directions of the surrounding features and hence relies heavily on the geomantic compass instrument, *Luopan*.

The concentric rings on the disc of the compass indicate the five elements, the eight trigrams, and the heavenly stems and earth branches (duodenary and sexagenary circles of time), and the twenty-eight constellations. Through a complicated divination process, these elements can be aligned with the eight characters representing the year, month, date, and hour of birth of the of the site's occupant. Then, the most auspicious direction specific to the occupant can be obtained, and the house or grave can be sited

90 Bramble, *Architect's Guide to Feng Shui*, p. 43
91 Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy*, p. 30

according to the determined direction.[92]

- Some *Luopan* have seven concentric tiers.
    - The 1st is divided into 24 positions showing the names of the heavenly stars for the divination of the qualities of the dragon at the site.
    - The 2nd tier also has 24 places
    - The 3rd tier contains the numerals 1-9.
        (Sum of 2 opposite numerals always makes ten)
    - The 4th tier is subdivided into as many as 64 positions, which are used for the divination of sand or *sha*, the site.
    - The 5th and 6th tiers are compositions of the *bagua*, the Stems and Branches
    - The 7th shows the position of the dragon by the compositions of the Stems and the Branches.

Rings 1-6 Center

- Rings 7-19 or 20 Earth Plate, assesses the *yin* and *yang* forces that influence the structure and dwelling.
- Rings 20 or 21-29 Inner Heaven Plate, reveals the auspicious and inauspicious forces around the building and the dwelling of man.
- Rings 30-36 Outer Heaven Plate, divines the good and ill fortunes of man with reference to the tides

With the center of the compass so consciously seen as the center of the universe and the three divisions of the universe seen in the three divisions of the compass dial, perhaps it is not wrong to take the compass as a Chinese model of the universe.[93]

3.1.4 *Yin* and *Ying* and *Qi*

The basic principle in Chinese cosmology, including *fengshui*, is harmony of the cosmic breath of *yin* and *yang*. According to *The Encyclopedia Sinica*, "*Yin* and *Yang* are the negative and positive principles of universal life", while Lip describes it as "Duality" (*yin* and *yang*) of "trinity" (the *yin*, *yang,* and harmony).[94] The *qi* or *liqi* (the energy according to the geography of the land) of a site is assessed through the examination of

92 Knapp, *Asia's Old Dwellings: Tradition, Resilience, and Change*, p. 323
93 Feuchtwang, *An Anthropological Analysis of Chinese Geomancy*, p. 59
94 Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy*, p. 13

Ying & Yang

Figure 8: The Chinese character of *ying* and *yang*. Rossbach, 1987

the physical form of the land and the orientation of the building. To express this external change, Confucius used the ancient numerals (8 Trigrams) of negative (*yin*) and positive (*yang*) signs to form the 64 hexagrams for which is the basis of the Chinese system of cosmology.[95] They stand for change: change in the fortune of humans, and actual changes in light, vegetation, weather. Other effects on the seasons help this perception. However, they are not opposing elements, but mutually balancing, *yin* and *yang* consist of two stages of a cyclical that continually changes relationship. *Yin* and *yang* are not independent of each other but can change into one another. This is a difficult concept for Westerners to grasp, as their thinking typically oscillates between opposites. In Chinese science, just as in Western complexity theory, phenomena are more readily accepted as inherently paradoxical, or dynamically balanced.

The qualities of *yin* and *yang* counter and complement because they exist in oscillating flux. This tension of opposites expresses unity- the *Taiji* or Supreme Ultimate, which is both first and last - and creates a potential that might manifest energy at any time.[96] The etymology of *yin* is "shady, the north side of a hill," and that of *yang*, "sunny, the south side of a hill." It is also important to remember that they are forces and principles, and not static entities.[97] Too much *Yin*-ness at a spot of ground may mean too much dampness, stagnation, and death; too much *Yang*-ness may mean over-parched earth, and over-exposure. The explanation does not go far to specify the physical effects of the *yin* or *yang* imbalance; it more readily and more frequently says that bad luck and noxious influences (*sha*) result from such imbalance and that it should be avoided.[98]

Fengshui is the combination of '*tian ling di li ren he'* (if the heavenly influences are

95 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 62
96 Bramble, *Architect's Guide to Feng Shui*, p. 19
97 Feuchtwang, *An Anthropological Analysis of Chinese Geomancy*, p. 63
98 Ibid., p. 64

auspicious, the geographical features are beneficial and the actions of man are in harmony with the social, cultural, and political situations, then the *fengshui* is auspicious).[99]

3.1.5 Basic Concepts of *Fengshui*

3.1.5.1 Bagua

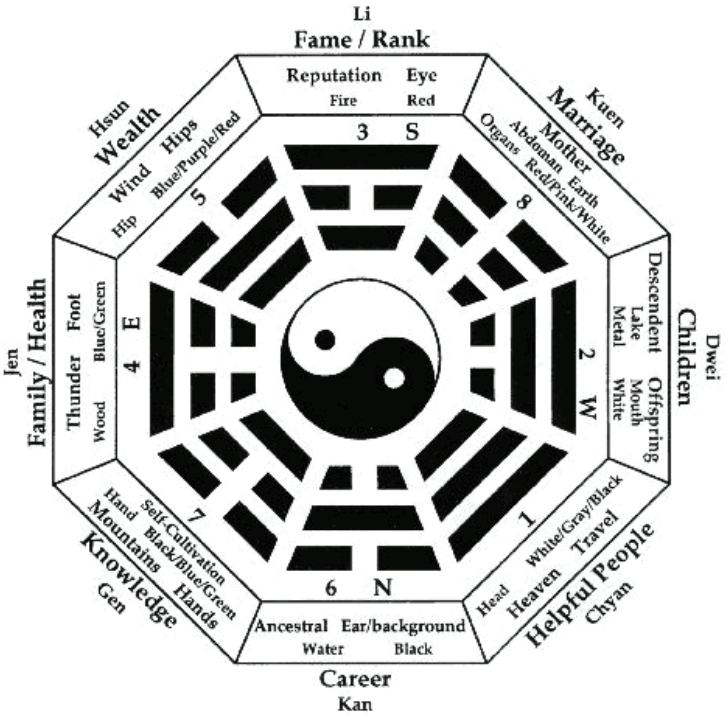


Figure 9: A *bagua*
http://www.natures-energies.com/images/bagua.gif

The *Yijing (I-Ching)* is one of the five Confucian Classics, in English the *Book of Changes*. The *Yijing* is an oracle book, a philosophy, and a work of art. The impact of this Confucian Classic in Chinese culture is rich and has traveled to the Western culture.[100] The *Yijing* is composed of 64 Hexagrams, built of a six-lined hexagram by tossing coins, wooden blocks, or yarrow stalks giving the "answer", which derived from the qualities of the relations between the figures and based upon a set of eight trigrams, *bagua*.[101]

The basic symbolic unit is a trigram. The combinations of individual trigrams transform into hexagram forms that can formulate 64 possible of trigrams. These basic principles of Chinese cosmology are based on text from the early 2860 B.C.E. The symbols or lines of the trigrams numerical system were to give indications of expressions in fortune telling. The maximum number of trigrams is a formation of various combinations of three lines either solid (*yang*) or broken: (*yin*). The Eight Trigrams indicate the eight points of the

99 Evelyn Lip, *Out of China: Culture and Traditions,* (Singapore: Addison Wesley Publishing, 2003), p. 61
100 Gary G. Melyan, *I-Ching The Hexagrams Revealed*, (Japan: Charles E. Tuttle Company Inc., 1977), p. 9
101 Sarvimäki, *Structures, Symbols and Meanings, Chinese and Korean Influence on Japanese Architecture*, p. 105

compass represented by a simple numerical system. All of these lines, trigrams, and hexagrams symbolize forces of action, change, and all phenomena of the universe. The geomancer reads from the compass, which shows the direction or orientation represented by the eight trigrams.

3.1.5.2 Five Elements, Ten Stems, and Twelve Branches

Tian ling – is the understanding of the influences of cosmology on the earth; a knowledge of the way in which astronomy and astrology influence the orientation of man's dwelling; the disposition of the stars and the cycle of changes; the understanding of Confucian classics, *Yijing* or Book of Changes; the awareness of the weathering processes and the forces of nature upon buildings and their surrounding environment.

Di li – the knowledge of magnetic fields and their effects on man; the appropriate sitting of buildings to tap the *qi* (*chi*) or energy of the earth; and the understanding of the characteristics of various topographical and geographical features of land forms (hills, valleys, flat land, and undulating land); the influences of the physical environment factors on buildings both internally and externally; the orientation of buildings for maximum comfort and conducive physical environment.

Ren he: the man's relationship with others and to his surrounding environment, which is affected by social, cultural, and political influences.[102]

Five Factors Govern the Choice of a Burial Place or Building Site

1. *Loong*: Dragon. This represents the location of the burial ground. The dragon is the most significant factor. In geomancy, the "twist and turns" or the "ups and downs" of the body of the dragon represent the topography of the site. A "false" dragon means that the land is flat while a "real" dragon has a good undulating profile. Good profile ensures that the site is favorable and is of solid ground. To determine the kind of dragon that exists on the site: "straight" dragon, is a dragon lying across the site or a dragon riding on the site.[103]

102 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 61
103 Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy*, p. 6

2. *Xue*: Hole or Cave, but in geomancy it indicates the foundation of the tomb or building site. Foundation factor is the most difficult to assess. Even with experience and knowledge, the geomancer finds it a difficult task to assess the *xue* of a site.[104]

3. *Sha*: it symbolizes the surrounding or neighboring environment of the site. After the quality of sand has been determined and classified accordingly, the divination of the site can then be computed. There are as many as 27 types of sand described in detail.[105]
4. *Shui*: Water. It depicts the stream flowing through or passing the site.[106]
5. *Xiang*: the orientation or the direction of the site.[107]

Without wind, the air is still; with wind, the air circulates.

In addition to the dualism of *yin* and *yang*, Chinese cosmology is based on the classification of all natural elements broken-up into five stages, *Wuxing*, the five elements; metal, wood, water, fire, and earth. As early as 4th century B.C.E. the concept of the Five Elements or Forces was introduced to the Chinese. In concrete terms, wood made fire, which burnt it to ashes in the form of earth, which had metal

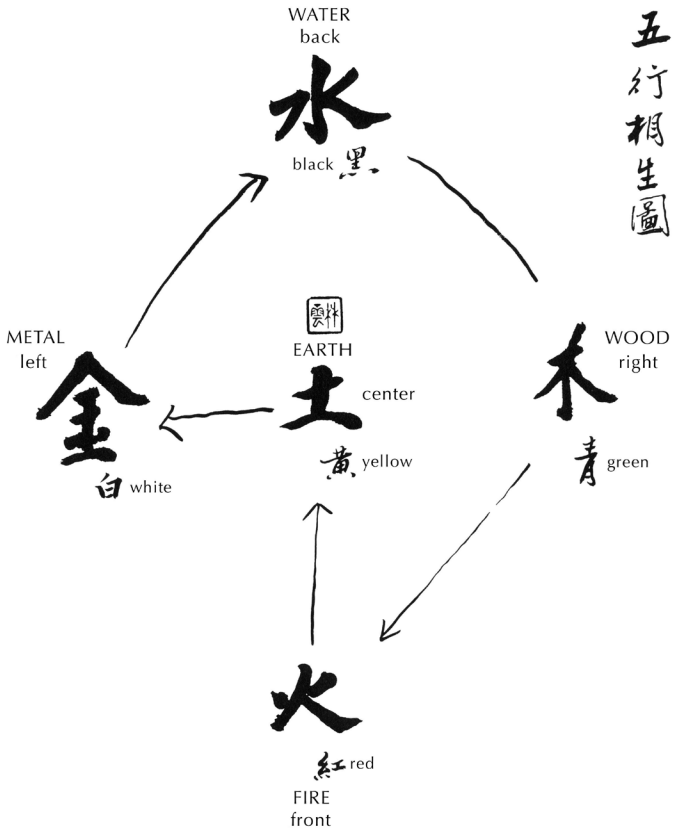


Figure 10: Five Elements in the contructive cycle, Rossbach, 1987

104 Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy*, 7
105 Ibid.
106 Ibid.
107 Ibid.

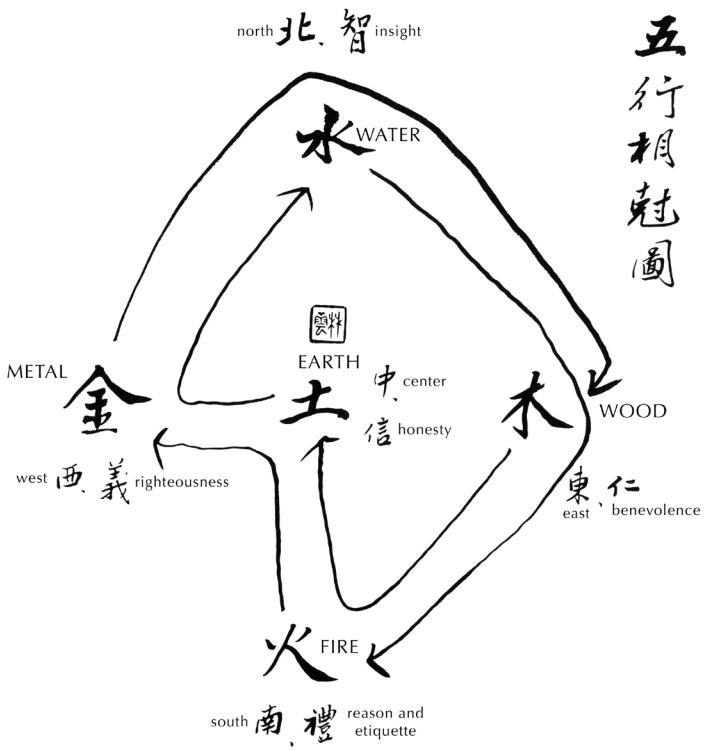


Figure 11: Five Elements in the destructive cycle, Rossbach, 1987

in the form of ores. Metal had dew or condensation in the form of water. Additionally, it could be melted into a liquid state. Water nourished plants and trees, thus producing wood. The power of counteraction between the Five Elements was in accordance with the law of nature and heaven. Water put out fire; fire melted metal; metal broke wood; wood cut into the earth; and earth absorbed water.[108]

Element	Wood	Fire	Earth	Metal	Water
Direction	East	South	Centre	West	North
Season	Spring	Summer		Autumn	Winter
Color	Green	Red	Yellow	White	Black
Planets	Jupiter	Mars	Saturn	Venus	Mercury
Emotions	Benevolence	reason/etiquette	honesty	righteousness	insight

Note that the relationship between elements, orientations, colors, and numbers is not to be taken literally, but rather to be thought of as hidden meanings and unseen cosmological influences. Planets are metaphorically correlated to the shape of the

108 Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy*, p. 16

landforms.[109] The Chinese elements are different types of energy, which inform every substances and every progress of change and transformation. Although their names are taken from observed external phenomena and the characteristics attributed to each of them are certainly based on the qualities of these phenomena, they are primarily a metaphysical series of concepts much as are *yin* and *yang*.[110]

The relationship of the elements with the Ten Stems and Twelve Branches, the relationship of the birth symbols with the time and the orientation and finally the chart showing the interrelationship of the Elements, the *yin-yang* principle, the Ten Stems, the Twelve Branches, the directions and the double hours of the day are shown in the following pages.

The Ten Stems (*Tian Gan*) and Twelve Branches (*Di Zhi*), before the Hsia period (2205-1766 B.C.)

Ten Stems or Branches[111]

jia, sign of growth in spring and withering in winter
yi, the triumph of life in spring or the spread of growth
bing, the root of growth or blooming
ding, predicts the maturity of things that grow or the vegetation
wu, the growth has reached a stage of abundance and fullness
ji, the order or hibernation of all things
geng, the fullness leading to the need for change
xin, the freshness and restoration
ren, the height of function
kui, the preparation for spring

Twelve Branches[112]

zi, bud or the young shoot of a plant, beginning of all things

109 Lip, *Feng Shui Environments of Power A Study of Chinese Architecture*, p. 63
110 Feuchtwang, *An Anthropological Analysis of Chinese Geomancy*, p. 67
111 Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy*, p. 17
112 Ibid.

chou, "tied", growth of things

yin, "moved," its significance is to lead the growing object and spread the growth

mao, similar meaning to the Stem

chen, progress and disregard for the old formation

si, "the renewed spirit"

wu, the growth has reached a stage of abundance and fullness, maturity

wei, signifies the smell of matured objects.

shen, expanded form of maturity

you, ripeness

shu, death

hai, nucleus

Combination of Branches and Stems forms the Sexagenary cycle, invented and applied by Emperor Huang Ti's prime minister during the 3rd century B.C.E.[113]

3.2 GOOD v.s. NOT SO GOOD

Contemporary discourse on *Fengshui* Principles

Although the principles of *fengshui* were developed during the past millennia they are still a vivid part of Chinese culture. One contemporary example of this is the discourse that evolved around the Bank of China and Hong Kong Shanghai Bank, both located in Hong Kong.

In 1978, China was in a poor economic state, but has once again become one of the world's major economic players with great potential. As a result of the economic reform or socialist market economy launched by Chairman Deng in the late 1970s, in the last 22 years following the reform and opening up in 1979, China's economic development has unprecedentedly gained momentum and has been steady into the 21st century. In the rapidly growing economy, both the Bank of China (BOC, the national bank of Peoples Republic of China) and the Hong Kong Shanghai Bank (HKSB), a United Kingdom based corporation, wanted to express a symbol of strength and power through architecture in Hong Kong. Those days' interpretations of *fengshui* applied to architecture were very

113 Lip, *Feng Shui, A Layman's Guide to Chinese Geomancy*, p. 17

crucial and were touchy topic in the city. Because, Hong Kong is physically located in China and *fengshui* originally rooted from China, I found it appropriate to discuss about two architectural icons in Hong Kong, although both are designed according to Western principles. The comparison will be the Hong Kong Shanghai Bank designed by British Architect, Norman Foster, and the Bank of China designed by Chinese-American, I.M. Pei. Both buildings are located in the Financial District of Hong Kong and had opportunities to incorporate *fengshui* into their designs.

3.2.1 Hong Kong Shanghai Bank, Norman Foster

Sir Norman Robert Foster was born on the first of June in 1935 in Reddish, Stockport, England.[114] He was born into a working class family and at the age of 16 he decided to leave school, and work in the Manchester City Treasurer's office. He then joined the National Service in the Royal Air Force. In 1956 Foster attended the University of Manchester's School of Architecture and City Planning, graduating in 1961. With a bright career in front of him, he partnered and started involving firms, which settled with Foster + Partners that became an international design practice.[115]

The HKSB took two years to be erected (1983-1985) when the growing institution was on the verge of a major international expansion. The HKSB wanted to keep its existing site because of its great positions according to *fengshui*. Moreover, tearing the entire building down would appear to threaten its stability and prosperity. Apart from these reasons, two practical problems arose from tearing down the existing building; finding an alternative space in Central District where the bank could move its headquarters while redevelopment took place, and finding a good architect.[116] The HKSB looked at 38 possible site locations, which concluded as an unsuccessful search for temporary space. Their next best option was to develop the project in phases, with the existing building on site.

The HKSB wanted to appoint an architect "with an international reputation for outstanding quality of design" at this point. In addition, they felt that the need for an

114 "Norman Foster, Baron Foster of Thames Bank," Wikimedia Foundation, Inc., 2010, http://en.wikipedia.org/wiki/Norman Foster, Baron Foster of Thames Bank> (10 November 2010).
115 Ibid.
116 Stephanie Williams, *Hong Kong Bank: The building of Norman Foster's Masterpiece* (Boston: Little, Brown and Company, 1989), p. 33

architect with superior local knowledge and experience was probably more important at this stage.[117] An announcement of a design competition was sent out to many well-known

architects around the world who were interested in designing the next HKSB. In the mid-February of 1979, nearly 50 different proposals were submitted showing different ways of arranging the bank's requirements for accommodation within some parts of its existing headquarters while demolishing others. The HKSB was still not satisfied and wanted to investigate the possibilities of several architectural firms of international reputation. It was Foster Associates who stood out in the list of international architects. However, Foster Associates failed to demonstrate basic criteria for selections: they have never built anything over four stories high, had never designed a bank, and lacked experience designing in Hong Kong. Norman Foster, 44, was a man reputed in international architectural circles to have one of the most clever and most innovative minds in the business. Foster's whole approach to building was unconventional, based on being as flexible as possible. His briefings took the form of exhaustive questioning of clients' requirements, and he worked with these to suggest a number of possible design solutions that would eventually be refined, at the last possible moment, into the final design.[118]

The plot of land that the HKSB sat on was favorable in terms of *fengshui*. According to *fengshui* the mountains at the back sheltered the HKSB from strong winds and evil influences, the wide views over water to welcome the food in the front, and the excellence of the overall position of the building went a long way towards making up for any short comings in the way the furniture was arranged. The views, through full-height panes of glass, were stunning: on one side of the building, lush tropical greenery tumbled down the hillside of the Peak, and on the other side, the brilliant blue of the harbor and a haze of Kowloon were spread wide.[119] The HKSB also purchased the property in front of the existing site, so there would not be any obstruction of view to the water (element water) and good flow of *qi* into the building. The idea of having a visual connection with water, which happens to be the Victoria Harbor, would bring in good wealth to the bank. Foster took it upon himself to seek out a geomancer so that they could understand for themselves

117 Ibid., p. 35
118 Williams, *Hong Kong Bank - The building of Norman Foster's Masterpiece*, p. 41
119 Ibid., p. 14

what *fengshui* was all about. A geomancer, Mr. Lai, was asked to guide them on how to ward off these and other evil influences (bad fortune and ill health) in the vicinity.

The first requirement of this new building was to provide a minimum of 15,000 square meters (162,000 square feet) of usable floor space. The HKSB would move into this new building and, subsequently, the north tower would be demolished. Then phase two of the new building would be put up. The challenge was to design a complete new building that would provide as much space as the building ordinances would allow – in two separate phases, while the HKSB continued to operate its headquarters from the site and make a significant visual impact to Hong Kong. All the construction was to be achieved with the least possible noise and disruption, including noise, vibration, dust, blocked access and interrupted views.

"Phase-regeneration" is what Foster called the development of the HKSB. His basic proposal was a radical new structural system, which provided an innovative intervention of flexibility in an order of which it could be constructed but also be utilized throughout the building. In this process, the first phase was to complete the building that stood behind the north tower. Secondly, the remaining north tower (old building) was demolished and a similar construction sequence involving four structural cores could then be repeated. Third, the redevelopment could begin, if desired, with the demolition of the 1935-banking hall.[120]

The construction is fully attuned to the fact that the ground floor could remain column-less and assume the scale of an urban plaza. This was expressed visually in the constructivist configuration of trusses that gives the building its distinctive appearance.[121] With its distinctive ladder facade, many consider this building a triumph- a landmark of modern architecture, even. It sits on four props that allow you to walk under it and look up through its glass belly into the soaring atrium within. Even more interesting is Foster's sensitive treatment of high-tech details: the mechanics of everything, from the elevators' gears and pulleys to the electric signs, circuit boards being visible through smoked glass. Because of all these mechanics, irreverent locals call this the Robot Building.[122]

120 Williams, *Hong Kong Bank - The building of Norman Foster's Masterpiece*, p. 78

121 Herman Hertzberger, Space and the Architect - Lesson in Architecture 2 (Rotterdam, Netherlands: 010 Publishers, 2000), p. 76

122 "Feng Shui Structures," Fodor's Travel, <http://www.fodors.com/world/asia/china/hong-kong/feature_30006.html> (22 November 2010).

Figure 12: Hong Kong Shanghai Bank
http://best-places.net/wp-content/uploads/2010/06/HSBC-building-in-Hong-Kong.jpg

Natural sunlight is a major source of lighting the building. Computer-controlled glass mirrors - 480 of them at the top of the atrium - change position throughout the day to reflect natural light into the core of the bank. You can get an insider's perspective by taking the escalators through the public banking hall up to the third-floor atrium. The escalators were readjusted from their original straight position to an angles setting towards the main entrance. This modification was made because evil spirits can only travel in straight lines. The realignment was thought to prevent waterborne spirits from flowing in from the Victoria Harbor. Also, the escalators are believed to resemble two whiskers of a powerful dragon, sucking money into the bank, while the diagonal orientation prevents money from "flowing" out from the bank hall.[123]

On the exterior, atop the building and pointing towards the BOC are two metal rods that look like a window-washing apparatus. This here is an example of a *fengshui* technique used to deflect the negative dreaded daggers (the triangular façade of BOC, which was built a few years after HSBC) energy away from the HKSB back to BOC. The two bronze lion statues that greet everyone every day outside the entrance of HSBC

123 "Feng Shui Structures," Fodor's Travel, <http://www.fodors.com/world/asia/china/hong-kong/feature_30006.html> (22 November 2010).

Hong Kong is to believe to contribute to the steady revenue of the bank, and repel evil sprits. These lions also have names; the left lion - the one with the mouth open - is named Stephen, after the general manager of Hong Kong branch A. G. Stephen, and the right is named Stitt, after the general manager of Shanghai branch at the time.[124] With all these *fengshui* principles integrated into the HKSB, positive compliments and criticism was awarded to Foster.

3.2.2 The Bank of China, I.M. Pei

Ieoh Ming Pei also known as I.M. Pei was born in Guangzhou and brought up in a typical Chinese family living in Hong Kong and Shanghai. In 1935 he moved to the United States and enrolled in the University of Pennsylvania's architecture school. Soon after, he transferred to Massachusetts Institute of Technology where he earned his degree and continued his studies at the Harvard Graduate School of Design. I.M. Pei is well known for his works around the world, the National Gallery of Art, East Building (Washington, D.C., 1968-78), Grand Louvre (Paris, France, 1983-89,1989-1993), and Bank of China (Hong Kong, 1982-89) and many others.[125]

In 1982, two representatives of the bank came to see I.M. Pei's father, a former General Manager of the bank. These two representatives (one was the chairman of the board), asked his father for permission to persuade his son to design the building of the new Bank of China. It was a Chinese gesture of respect, which he accepted. This new building would house the headquarters for the BOC in Hong Kong.

The plot of land was 6,700m2 and the government sold the site for "only HK$1 billion" in August 1982.[126] I.M. Pei accepted the commission under two conditions, despite two other conditions related to the site, which he did not like: The difficult inland parcel, which sloped some 30 feet at the foot of Mount Victoria, was located at the far edge of the business district, and skewed out of alignment with the street grid and encircled by elevated highways. Another condition was the site's square configuration, which dictated

124 "Hong Kong Shanghai Bank Building," China Hong Kong Travel Guide, <http://www.china-hongkong-travelguide.com/hongkong-shanghai-bank.html> (22 November 2010).

125 Philip Jodidio and Janet Adams Strong, *I.M.Pei Complete Works* (New York: Rizzoli International Publications, Inc., 2008), p. 5

126 "Bank of China Tower, Hong Kong," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Bank_of_China_Tower,_Hong_Kong> (9 November 2010).

that a building of the required size would front onto a municipal garage.[127] The building program was simple: stay within budget and provide an imposing banking hall and 1.4 million square feet (130,000 sq m) of office space- forty percent for BOC, and the rest for leasing.[128]

Figure 13: Bank of China
http://en.wikipedia.org/wiki/File:HK_Bank_of_China_Tower_View.jpg

At that time, the BOC was the tallest building in Hong Kong and Asia from (1989-1992), and it was the first building outside the United States to break the 1,000 ft mark. The building is 1,033.5 ft high, and 70 stories tall with two masts reaching 1,205.4 ft high. It is now the fourth tallest building in Hong Kong. Pei took in consideration the typhoon forces in Hong Kong that are twice the wind loads in New York or Chicago and equivalent to four times the seismic forces in Los Angeles. Pei linked bamboo metaphorically into the design for it resembles strength, incremental growth, livelihood, and prosperity, which every Chinese would understand as an auspicious symbol. Engineer Leslie Robertson confirmed the scheme's inherent structural rigidity and, working closely with Pei, designed for it an innovative composite mega-truss that combines two structural systems - one to carry the tower's weight, and the other to resist lateral wind thrust.[129] The five steel columns at the corners of the building support the whole structure, with the triangular frameworks transferring the weight of the structure onto these five columns. A fifth central column extends down to the 25th floor where loads are channeled to the tip of a skeletal pyramid out to the columns.

127 Jodidio and Strong, *.M.Pei Complete Works,* p. 195
128 Jodidio and Strong, *I.M.Pei Complete Works*, 195
129 Ibid., p. 196

While all of the forces are transferred to the corners, the building's interior is column-free while its structural frame remains light, yet rigid and stable, like a four-legged stool.[130] The structural system is clearly expressed on the exterior where aluminum panels trace the corner columns and diagonal braces. The tower's horizontal trusses were also supposed to have been expressed, but when the client objected to the stack of X's, indicating a negative connotation in China (in terms of *fengshui*, the so-called "secret arrows"), Pei removed the offending horizontal and thereby transformed the tower into a string of diamonds.[131]

As the tallest building in Hong Kong, the BOC became one of the most identifiable landmarks of the city during its time with glass curtain walls that give it a distinctive look. It is also one of the most controversial buildings because of Pei's decision not to consult a *Fengshui* master regarding the matters of design of the BOC. The controversy stems from the way it was designed and how it affected the neighboring buildings around it.[132] By looking at it from a *fengshui* perspective, the sharp corners are seen as *shar qi*, or "killing energy" knifing down its nearby buildings and the people around it. With the way the building was designed with its irregular shaped corners, it is more suitable for companies with irregular incomes to set up their business there.[133] The building's profile from some angles resembles that of a meat cleaver, cutting the HSBC Hong Kong headquarter building of their good fortune.[134]

> *Von Boehm asked Pei "You were confronted with much Chinese mythology when you designed this building. When you first started to design, you compared it to a bamboo which grows"*
>
> *Pei's response was "The problem I faced in Hong Kong was "fengshui", which literally means "wind and water." It has its roots in the worship of the forces of nature, which sometimes degenerated into a form of superstition. When you design buildings in Hong Kong, you cannot get away from that problem. There are specialists, Fengshui masters, who advise people on all matter of things, especially on the selection of a building site; placement of the building on the site, and the shape and form of the building. I was aware of this, but did not take it seriously. As soon as we made our design public, I was immediately attacked – just as fiercely as I was attacked for the Louvre, but for entirely different reasons. For instance, they attacked our building because it had too many sharp corners. They said,*

130 Ibid., p. 197
131 Jodidio and Strong, *I.M.Pei Complete Works*, p. 198
132 King, Jerry, "Feng Shui of the Bank of China Tower (Hong Kong)," Ezinearticles, <http://ezinearticles.com/?Feng-Shui-of-the-Bank-of-China-Tower-(Hong-Kong)&id=3686619> (9 November 2010).
133 Ibid.
134 "Bank of China Tower, Hong Kong," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Bank_of_China_Tower,_Hong_Kong> (9 November 2010).

> *"The corners are like the blades of a sword, which will bring bad luck to one's neighbors." There were many other objections. Fortunately, my client supported me to the end."*[135]

At the time, the tower was being built, Pei was in charge of the project without consultation with *fengshui* masters. Once the designs were made public, he was severely criticized and decided to incorporate a few water features around the building as a 'remedy' to the sharp edges of the tower. Unfortunately, some of the water features were incorrectly placed. I.M. Pei had placed a cascading water fountain in the West and Northwest sector of the property, according to *fengshui* was another error. A water element, such as a water fountain should not be placed in the West (*Dui*) and Northwest (*Qian Gua*) because water weakens the metal element, which is represented in the West and Northwest. The *Qian Gua* represents the male or the dominant figure and it is being weaken by the water in the sector.[136]

After the building was completed, *fengshui* masters gave many recommendations to change the vibe and energy of the tower. The front of the tower has many plants and trees while right by the side of the front door, flagpoles are seen. On both sides of the building, there are water features bringing energy to the front. At the back of the building, there are two red awnings placed on top of the doors holding up the water and energy from the back, figuratively speaking.

The two masts on the top of the building have been said to resemble incenses of the dead and that it will cause ill health of the people in the building and the surrounding buildings. The BOC Tower has been used as an example of how its negative energy can affect nearby buildings and the people working inside those buildings. This represents that after completion, the *fengshui* can continue to have an effects on the surrounding environment.

3.2.3 Conclusion between BOC and HKSB

Despite China's poor economical state in the late 1970's, they began to gain momentum in rebuilding their economy. Today, China is one of the world's major

135 Gero Von Boehm, *Converstations with I.M. Pei - Light is the Key* (New York, Prestel Verlag, 2000), p. 105
136 King, Jerry, "Feng Shui of the Bank of China Tower (Hong Kong)," Ezinearticles, <http://ezinearticles.com/?Feng-Shui-of-the-Bank-of-China-Tower-(Hong-Kong)&id=3686619> (9 November 2010).

economic players. Both Republic of China and Hong Kong wanted to express their strength and power through architecture. Due to the hand over of Hong Kong to the Republic of China in 1997 [137], the possibilities of using *fengshui* application was seen as a must have in any architectural design project, as it was much apart of this culture for many years. Not considering *fengshui* or consulting with a *fengshui* master is seen as a taboo. I.M. Pei did just that; he disregarded consulting with a fengshui master and designed the new BOC. He was inspired by bamboo, symbolizing growth and strength. On the other hand, Norman Foster entered unfamiliar territory and circumstances when designing a bank more than four stories high in Hong Kong for the first time.

The social responses of these two buildings were expressed strongly over the usage of *fengshui* practice. I.M. Pei received negative press about the BOC for its knife like facades and form and for failing to consult with a *fengshui* master. Norman Foster received positive press over his well-done design of the HKSB, as he did consult and work closely with a *fengshui* master. Within these case studies, key points and indicators of bad and good *fengshui* practice are shared in each building. Exploring both *fengshui* attributes of the HKSB and BOC, whether good or bad, shows the importance of *fengshui* application in China. Because these two buildings had much publicity, they are easily compared as HKSB- Good, BOC- Bad. Hence, the subject *Fengshui* in China should not be taken lightly.

3.3 Applications of Fengshui Principles to Perkins + Will's Residential High-Rise Buildings

During my Spring 2011 semester I embarked on an Alternative Experience of the professional studio. This Alternative Experience course integrates theory, practice and comprehensive research of architecture in an off-campus professional setting. The primary objective of this program is to develop a research project in collaboration with the individuals and entities involved in the Professional Studio internship. This opportunity allowed me to explore the relationship between academia and professional practice.

137 "1997: Hong Kong handed over to Chinese control", BBC News. 1 Julyhttp://news.bbc.co.uk/onthisday/hi/dates/stories/july/1/newsid_2656000/2656973.stm (November 20, 2011).

I moved to Chicago, Illinois the "Windy City" for this experience of a lifetime. At the Chicago office I was under the supervision of mentors Bruce Toman, AIA, Principle and Technical Director, Alja Aksamija, Building Technology Researcher, Curt Behnke, Senior Project Director, and Greg Tamborino, AIA, Senior Architect. The intension of my study and research was to continue my study of *fengshui* in different locations and settings. I analyzed Perkins + Will's residential high-rise buildings, with the knowledge gained from my previous research and its relation of *fengshui* principles.

3.3.1 Perkins + Will's 75 years of Excellence

In 1935, Lawrence Perkins and Philip Will Jr. started an architectural firm on Michigan Avenue in Chicago, Illinois. Throughout the years, Perkins + Will has reached international recognition as an innovative architectural firm. Last year in 2010, Perkins + Will celebrated its 75th anniversary. They currently have 23 offices on three continents: Atlanta, Boston, Charlotte, Chicago, Dallas, Dubai, Hartford, Houston, London, Los Angeles, Miami, Minneapolis, New York, Orlando, Philadelphia, Research Triangle Park, San Diego, San Francisco, Seattle, Shanghai, Toronto, Vancouver, and Washington, DC. With an increasing rate of obtaining 23 offices with close to 1,600 employees this indicates that Perkins + Will one of the world's largest architectural practices.

3.3.1.1 Five Initiatives

According to Perkins + Will, the following qualities are include in their mission and vision of the firm.

Design Leadership Forum is founded by a group of Perkins + Will Design Principals that work to enforce a standard of design excellence. They believe that design has the power to transform lives in our culture and communities. DLF sponsors an annual internal design competition with the purpose of recognizing design excellence and promoting the Perkins + Will design brand as well as mentoring design talents across the firm.

Excellence in Execution promotes ongoing improvement in the delivery of quality professional services to Perkins + Will's clients by creating consistency in the policies, procedures and execution of work between offices and fostering the development of a true one-firm firm.

Project Management Initiative aims to create and sustain a culture of excellence in project management and leadership throughout the firm. Project Management is as vital and important as design, execution and sustainability on all our projects.

Social Responsibility Initiative began as a result of the Principal's Retreat in New Orleans in late April 2007. Since then, the initiative has taken shape and evolved into a meaningful and functioning effort; they are committed to the 1% solution, and pledge to donate 1% of their time to provide pro-bono design services to those that could not afford it.

It is their philosophy to design buildings that contribute to the well-being of

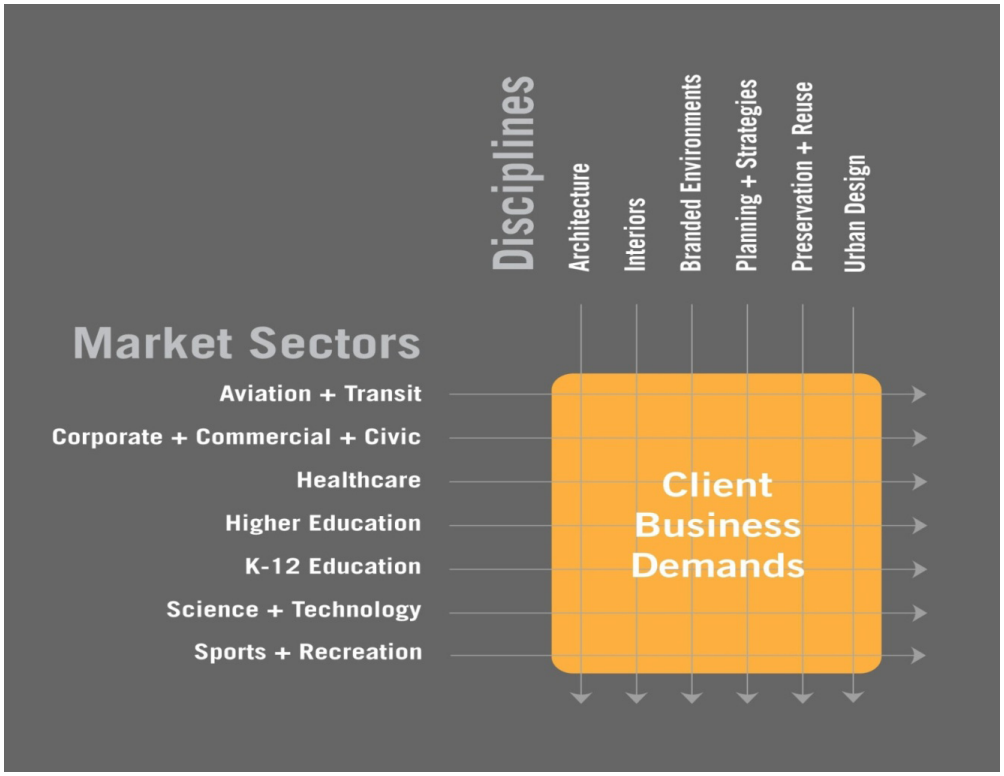


Figure 14: matrix of Perkins + Wills Market Sectors and Disciplines, Permission from Perkins + Will, 2011

humans while enhancing the future of our planet. The objectives of the **Sustainable Design Initiatives** are to reduce the negative impact of the buildings through sustainable strategies. The firm-wide operations on the environment uses examination of the tools, activities and partnerships of work, and intentionally selecting options which align with our goal of working to establish a sustainable future.

3.3.1.2 Purpose

Through the **DESIGN**, design has the power to transform lives in our culture and in communities. One of the core values of Perkins + Will is that built environments should reflect context, history, cultures, communities, and the natural environment while incorporating technology. Perkins + Will strives to understand the holistic views of the client's vision, needs and context, and adding creative and innovative solutions to solve complex issues and problems for the client's businesses and missions.

In the **INNOVATION** sector, they have created a practice where design, technology and research converge to create places that improve how we live and work. They believe that it is essential to make focused investments in thought leadership in order to solve clients' increasingly complex challenges and advance architectural profession. Examples are biannual Perkins + Will Research Journals, Tech Lab research, Innovation in Project Delivery Initiative, and Innovation Incubator program.

Perkins + Will strongly believes in being **SUSTAINABLE**. Applying a creative and collaborative process in all of the disciplines helps to improve the environment through regenerative design. Every office is designed to meet LEED Platinum standards and metered to monitor performance. They incorporate design strategies to reduce carbon emissions and invest in renewable energy technologies. They are committed to supporting a diverse culture of sustainable design through applied research, internal educations, public advocacy and outreach. They have developed tools to assist them in their knowledge of sustainable design practices.

Perkins + Will's **INTERDISCIPLINARY** perspective has drawn from diverse educational, professional and geographic backgrounds. Their teams combine their expertise to work through a holistic approach looking at every angle of the spectrum (architecture, branded environments, interior design, planning + strategies, preservation + reuse, and urban planning). An interdisciplinary collaboration is hard work, and they have invested in their abilities to deliver a rich process to their clients so that their design experience is grandeur.

From a **SOCIAL** perspective their philosophy is that design has the power to

transform and enhance the mission and business of our clients and improve society overall. In every project that Perkins + Will commission, they strive for a comprehensive understanding of their clients' mission, vision, needs, and context in order to transform their culture and environment. They are deeply rooted within creating ideas + building that honor the broader goals of society. They also contribute an equivalent of a 15-person firm working full-time to supporting *pro bono* initiatives every year.

3.3.1.3 The Founding Office, Perkins + Will - Chicago, Illinois

Lawrence Perkins and Philip Will Jr. established an architectural firm in 1935 on Michigan Avenue in Chicago, Illinois. Perkins + Will's Chicago office is currently located on 330 North Wabash Ave. Suite 3600, Chicago, Illinois in a historic Mies Van Der Rohe, IBM Building. As the largest office in the firm, the Chicago office has expertise of more than 250 architects, interior designers and planners. Perkins + Will's Chicago office focuses on different market sectors, such as higher education, healthcare, corporate, commercial, civic and science and technology. The Chicago office of Perkins + Will has won more local AIA design awards than any other Chicago design firm.

Figure 15: Mies Van Der Rohe, IBM Building.
330 North Wabash Ave.
Perlons + Will, Chicago Office. Photo by Author, 2011

Perkins + Will has branched into residential high- rise buildings within the last two decades in Chicago. Ralph Johnson FAIA, Design Principal, has been the key architect for the design of these residential high-rise buildings, and has also designed the selected case studies: 235 West Van Buren and Skybridge. These two residential high-rise buildings had different design approaches and program components.

I will use four units ranging in different square footage, program, and layout from each residential high-

rise building. From there, I will analyze thoroughly using the *fengshui* matrix that I have created and provide an insight of positive and negative *fengshui* guidelines. Throughout the process of analyzing these floor plans, I will show two or three floor plans for each unit, which will include the existing floor plan, minor changes of existing floor plans, and new proposed floor plans. Minor changes of existing floor plans will demonstrate suggestions for improving the flow of "*qi*" into the unit. New proposed floor plans are designed according to the principles of *fengshui* while keeping the integrity of the layout of the unit and its structure.

3.3.2 235 West Van Buren – 235 West Van Buren, Chicago, Illinois 60605

This residential high-rise building is placed in the South Loop of Downtown Chicago. 235 West Van Buren is a prime location as a threshold to the city from the Eisenhower Expressway. From a distance, the building's façade looks like a kinetic billboard of active balconies and are the first landmarks people will see upon entering the city from the expressway. From the North, the material of the façade is used in a more typical proportion for local residential towers – heavier sills and vertical members are expressed. The "brick pattern" of the strip windows helps further reduce the scale and liven up the façade, establishing a grid that relates to the neighboring office towers.

235 West Van Buren was designed as an extremely efficient residential tower that maximized the entire site and as a conversion between the north (commercial developments) and the south (residential and mixed-use development). Dividing the tower into two masses separates the overall mass of this building. The appearance of the building being divided into two reduces the scale of the building and provides an urban space at the street corner. The concept of reducing the scale and making the two slabs different in height provides reliefs at the top of the building.

The expression of the two masses is distinct. Being located in the South Loop of Chicago's financial district, the building's all-glass facades fit in well with the surrounding nearby office buildings. The overall mass of the façade incorporates a pleasing articulation of cantilevered balconies, which conveys the individuality of the units, declaring the building as a place of residence. Within the design of the façade a meandering concrete ribbon is shown and highlights the penthouse floors, frames the building's compositions,

and separates the other functions at the base.

The design focus of the units is designed to maximize efficiency while providing openness from within. There are 33 floors of residential living spaces making a grand total of 714 condominium units at an average of 910 square feet. There are about 22 varieties of unique floor plans on each floor. They are all public living spaces are placed along the exterior walls with the greatest quantity of views of Downtown and Lake Michigan. They have exposed concrete columns, pre-wired high-speed internet, cable and phone service. With the public living space being open to large portions of floor to ceiling windows, this provides an abundance of natural day lighting, which then filters into the bedrooms with partial height walls sharing natural lighting and ventilation. The majority of all the units have private balconies to enjoy.

Figure 16: 235 West Van Buren, Chicago, Illinois
Permission from Perkins + Will, 2011

There are six high-speed passenger elevators (3 low-rise and 3 high-rise). There are also eleven floors that are dedicated to the garage; 572 parking places, 50 tandem-parking places, with two parking garage passenger elevators. The ground floor is designated for retail and commercial use.

3.3.2.1 Project Team

Architecture Firm: Perkins + Will, Chicago, Illinois

Designer: Ralph Johnson FAIA, Bryan Schabel

Project Principal: Bridget Lesniak

Technical Contact: Bruce Toman

Project Team: Ralph Johnson, Bridget Lesniak, Bryan Schabel, Robert Neper, Greg Tamborino, Tara Rejniak, and Chirstopher Wolf

Structural Engineer: Tylk Gustafson Reckers Wilson Andrews, LLC.

Mechanical Engineer: Cosentini Associates

Electrical Engineer: Terra Engineering, LTD

Plumbing Engineer: Cosentini Associates

Landscape Architect: Terra Engineering, LTD

Real Estate Developer: CMK Companies

3.3.2.2 Developer – CMK Companies

CMK Companies is a real estate firm that was founded in 1995 by Colin Kihnke, President and Founder. Scott Hoskins is the President and Managing Broker of this award-winning firm, and gave us a private tour of 235 West Van Buren. All CMK Companies project pursues for the best quality, value and the intelligent design in contemporary living. The firm is currently responsible for over one billion dollars in real estate development.

3.3.2.3 Chicago Community Land Trust (CCLT)

The Chicago Community Land Trust (CCLT) was founded in 2006 and is a non-profit corporation. The CCLT provides Chicagoans with sustained quality, affordable house ownership opportunities, and a community for working families and individuals who work in Chicago. There are guidelines and regulations that need to be complied in order to be consider for this program. The CCLT works in combination with other city programs such as Downtown Affordable Housing Zoning Bonus, Affordable Requirements Ordinance, CPAN, Homestart, and New Homes for Chicago.

3.3.2.4 Affordable Requirements Ordinance (ARO)

The City of Chicago's Affordable Requirements Ordinance (ARO) requires residential development that receives city financial assistance or involves city-owned land to provide a percentage of units at affordable prices. The ordinance applies to residential

developments of 10 or more units and requires that developers provided 10 percent of their units at affordable prices. The ordinance also applies if a zoning change is granted that increases project density or allows a residential use not previously allowed, and the development is a "planned development" within the downtown area.[138]

3.3.2.5 Long-term Affordability

Units built under the ARO are required to remain affordable over time. Some units will have recapture mortgages to regulate the long-term affordability. At the time of purchase, the city records a 30-year lien for the difference between the unit's market price and its affordable price. Other units will be targeted for CCLT. These units will have a 99-year restrictive covenant with a maximum resale price. The maximum resale price will be the original purchase price plus a percentage of the market appreciation, and in most cases will be a below market price.[139]

3.3.2.6 Site Visit

On Monday, January 24th, Scott Hoskins, President and Marketing Broker of CMK companies greeted Greg Tamborino, Bruce Werner, and myself in the lobby at 235 West Van Buren. Scott was very kind to take us on a private tour of different types of units that we wanted to see. We saw a highly efficient one-bedroom unit to two stories penthouse suite. He informed us that majority of residents that live in this building are between the ages of 30 to 50 years old, who are majority working professional. There are rare cases of families with children who live in this building. The occupants who live at 235 West Van Buren are first time homeowners, where 44 of the units are under the CCTL program ($75,000 cheaper). I decided to select 1 -1 bedroom, 2 – 2 bedroom, 1-3 bedroom units to fully analyze through *fengshui*.

138 "Affordable Requirements Ordinance." The City of Chicago's Official Site. 2011. City of Chicago. <http://www.cityofchicago.org/city/en/depts/dcd/supp_info/affordable_housingrequirementsordinance.html> (4 February 2010).

139 Ibid.

Figure 17 & 18: Unit #20, left: Computer Alcove, right: Master bedroom
Photo by Author, 2011

Unit #20 (units 20's or 6's): This unit is a one bedroom, one bathroom, and computer alcove at a total of 692 square feet with views of the North. This particular unit is a CCLT unit on sale for a price of $142,430, although the market price is $210,900. My first impression of this unit was that it felt dark and compressed. The foyer was inviting and a beam and column created a window frame towards the living room. This long and narrow (45' X 15') unit was efficiently designed to incorporate the program needed. The wall that separated the kitchen and the bedroom was a partial height wall, which to code must include natural lighting and ventilation. I personally did not like this wall and would have installed a glass or transparent window partition to close up the gap, but would still bring in natural light and ventilations.

Unit #12 (units 12's or 14"s): Unit #2812 has two bedrooms, two bathrooms, computer alcove option, and two balconies. The total living square footage including the two balconies are 1,259 square feet with a listed price of $348,900. This unit is a southwest corner, which looks out towards the river. Some of the features this unit offers are large and open living room and kitchen with a large wrap around balcony. Nevertheless, some of the negative features I observed included the toilet being in direct sight upon the entry of the unit shown in figure 19 and the square columns in living room.

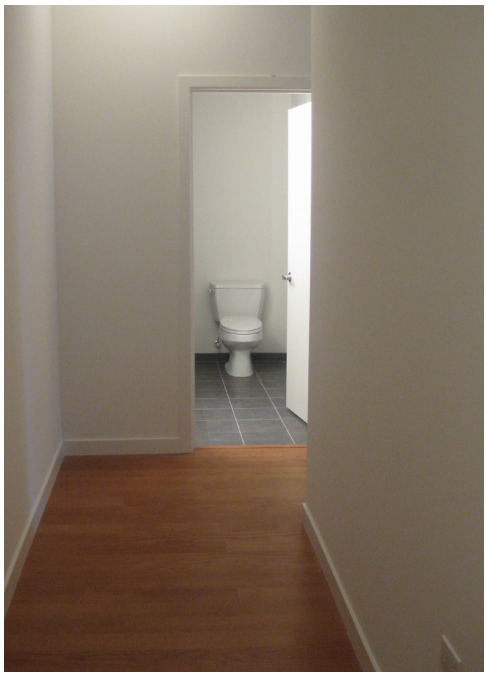


Figure 19: Unit #12, View from the foyer, Photo by Author, 2011

Figure 20: Unit #14, View from the Living Room Photo by Author, 2011

Unit #14 (units 12's or 14"s): Another two bedrooms, two bathrooms, computer alcove, and 60 square feet balcony is listed for $339,900. This 976 square foot corner unit faces northwest. The back-to-back bathrooms are unusual to me. The orientation of the bed in the master bedroom is an irregular arrangement, although bedroom 2 had the perfect bed arrangement, where the bed was against a solid wall and if one was laying down on the bed, he or she could clearly see the door to the front left direction of their bed. As repeated from Unit 1720, the partial height wall is present in this unit that separates the kitchen and bedroom 2.

Unit #PH01 (Penthouse): We did not have a chance to look at this unit first-hand, but the layout of the floor plan is available on the 235 West Van Buren website. This penthouse unit is a three bedroom, three bathrooms, with balconies as well.

3.3.3 Skybridge – 1North Halsted, Chicago, Illinois 60607

Skybridge is located in the north end of the Greek-town neighborhood, west of downtown Chicago. This condominium is surrounded by infrastructure. The Kennedy Expressway is to the east and Halsted Street is to the West. To the north of the site is Washington Street and to the south is Madison Avenue. Constant vehicular traffic surrounds the Skybridge. The building's design is a base – and – tower parti, which responds to the two existing urban conditions.

Figure 21: Skybridge, Chicago, Illinois
Permission from Perkins + Will), 2011

The 425–foot tall linear vertical structure parallels the expressway on the eastern portion of the site to maximize views of the city of Chicago skyline. This 39–story, 237–unit residential condominium tower includes a five-story base component. The base of the building consists of a Dominick's Grocery Store, Chase Bank, and Starbucks Coffee Shop at grade, with four levels of free parking above the retail. The mass of the tower is an urban marker defining the western edge of the depressed expressway and creates a gateway to the growing neighborhoods as they head west of the "Loop".

The challenging objectives of designing a residential tower include accommodating flexible unit type for future combination use, value, view and natural day lighting. To create an atypical vertical living residential building, adding a 7-foot wide glass bridge that spans a large 30-foot wide transparent opening beginning on the 14th floor would make the appearance of this building more captivating. This forms an over-scaled urban window, and also suggests an alternate interpretation of the building as two interconnected towers rather than a single large mass. Beginning from the 14th floor, two units were eliminated for two purposes: 1) To break-up the mass of the buildings 2) To provide for three additional corner units on each of the remaining floors. The majority of the structure is cast concrete with glass exterior enclosure. The exterior's primarily colors are shades of gray with a color scheme that embodies a variation of red, yellow, and blue, which are used at specific areas of articulation in the architectural form.

At the entry of the building, the articulation of the building can be seen; cutouts and notches in the building mass, and a slot of connecting bridges between the two towers. At the top of the northern tower, a four-story column is supporting an open roof trellis that cantilevers 40-feet and suspends over the buildings below. This dynamic structure is captivating and acknowledges the importance of the top in relation to the surrounding towers.

3.3.3.1 Project Team

Architecture Firm: Perkins + Will, Chicago, Illinois

Design Principal: Ralph Johnson FAIA

Managing Principal: G.William Doerge, Terrance Owens AIA

Technical Principal: Fereidoon Afshari AIA

Senior Designer: Curt Behnke

Senior Technical: Ken Soch

Construction Administration: Bryan Schabel

Specifications: Raymond Coleman

Project Team: Monica Oller, Aimee EckMann, Malaika Corsentino, Rick Reindel, James Skalla, Jack Bransfield.

Structural Engineering: Samartano & Company

MEP & Fire Protection: WMA Consulting Engineers

Civil Engineering: Eriksson Engineering

Construction Manager: Ameri-con Enterprise Services

General Contractor: Walsh Construction Group

Client/Owner: Moran Associates/Dearborn Development, LLC

3.3.3.2 Client/Owner – Moran Associates/Dearborn Development, LLC

Bill Moran represents Moran Associates, in which represented Dearborn Development, LLC in the real estate and marketing sector. Howard Wiemer and Glenn Emig were the representatives from Dearborn Development, LLC.

3.3.3.3 Site Visit

On Wednesday, February 23, 2011, our team leader/tour guide Curt Behnke, with followers Greg Tamborino, Bruce Werner, and I made a site to Skybridge. Curt made arrangements with an owners Larry and Ruth Standlee who lived in a combined G and H unit if we could take a tour of their home. Ruth heavy-handedly customized this unit to her and her husband's taste, unable to experience the original floor plan that was initially designed for this combined GH unit. Although she was able to manipulate flow into one space to another, there were some negative *fengshui* aspects with will be expressed in section *3.3.4.2 Positive & Negative Attributes for Skybrigde*. However, many of the architectural and finished details were well thought out and executed by Ruth. I was quite impressed by her knowledge

Figure 22 & 23: top: Standing in foyer looking toward the kitchen, bottom: view of the kitchen
Photos by Author, 2011


Figure 24 & 25: left: Living Room, right: Husbands wash and dressing area
Photos by Author, 2011

without having a degree in neither architecture nor interior design. The Standlee's overall combined unit home was beautifully done and is cozy.

3.3.4 *Fengshui* Analysis of Residential High-Rise Buildings, *Fengshui* Outcome and Suggestions

In this chapter, a dialogue between *fengshui* applications and unit floor plans will be shown through three sets of floor plan drawings: existing, minor changes to existing, and new proposed. From both 235 West Van Buren and Skybridge, four units ranging from a one-bedroom unit to a three-bedroom unit have been selected. Indications through callout text boxes on the minor changes to the existing floor plans will explain the suggestions to improve the *fengshui* "*qi*" of the unit. The new proposed floor plans keeps the existing structure and outline of the unit and room placements and circulation changes. Not all units will have a new proposed floor plan because of the unit's proficient use of space.

3.3.4.1 235 West Van Buren - Application of *Fengshui*

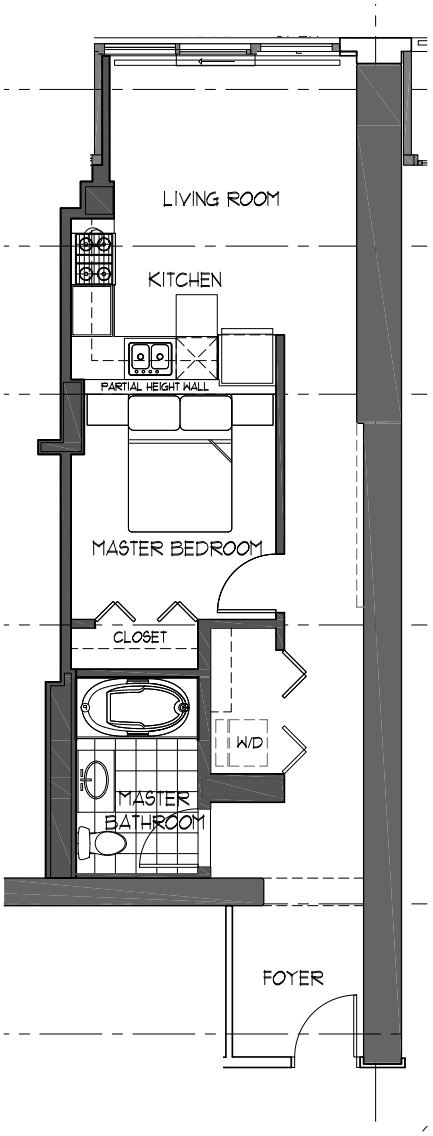
Four units have been selected to be analyzed; Unit 20 (one-bedroom), Unit 12 and Unit 14 (two-bedroom) and Penthouse 01 (three-bedroom).

Unit 20 - 1 Bedroom + 1 Bathroom + Computer Alcove = 692 Total Square Feet

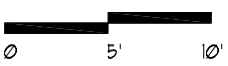
Positives
- Rectangle shape unit (long and narrow)
- Entrance to the unit is from the South
- 1 Bedroom

Negative
- Odd corners in Master Bedroom
- Foyer- column and beam

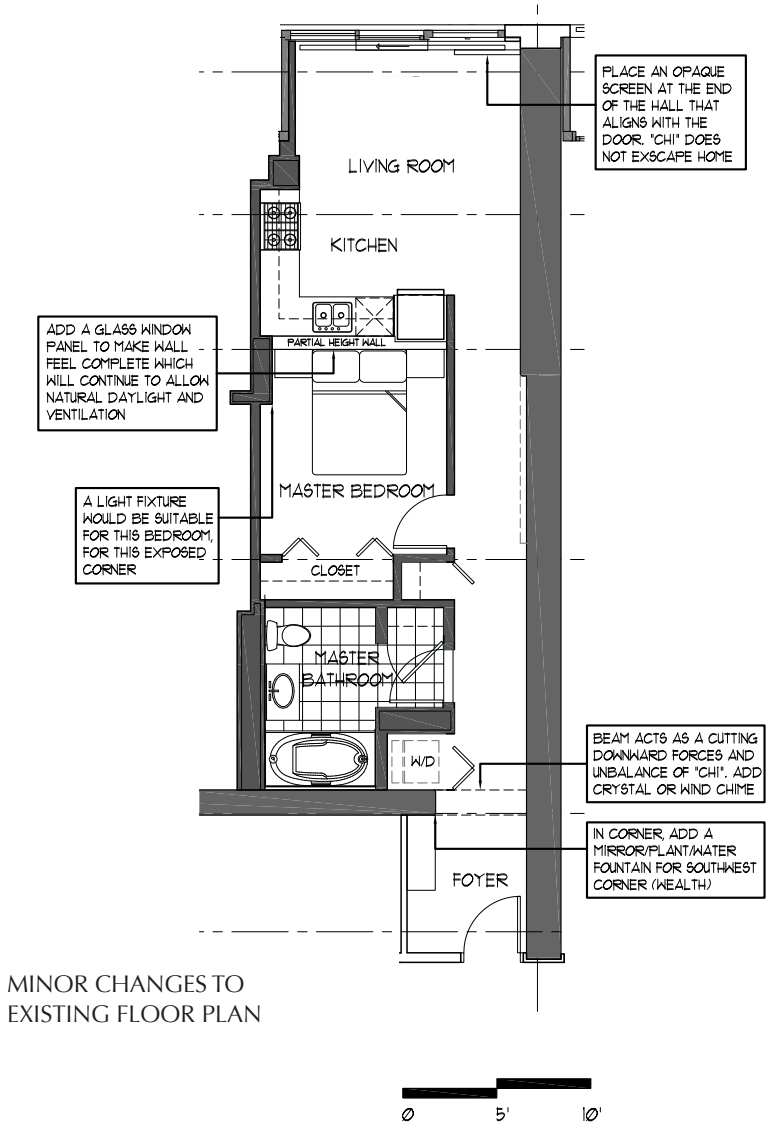
Notes
- Long and narrow hallway to the Living Room
- Partial height wall should be extended to ceiling or add a fixed glass
- Most efficient use of space for a small and narrow unit



EXISTING FLOOR PLAN



Unit 20 - 1 Bedroom + 1 Bathroom + Computer Alcove = 692 Total Square Feet



Foyer
- Column corner acts as a “poison arrows” or “dagger,” add a mirror, plan, water fountain for the southwest corner (Wealth and Prosperity)
- The beam acts as a cutting downward force like a guillotine and creates an unbalance of “*qi*.” Hang a crystal or wind chime on or near the beam.

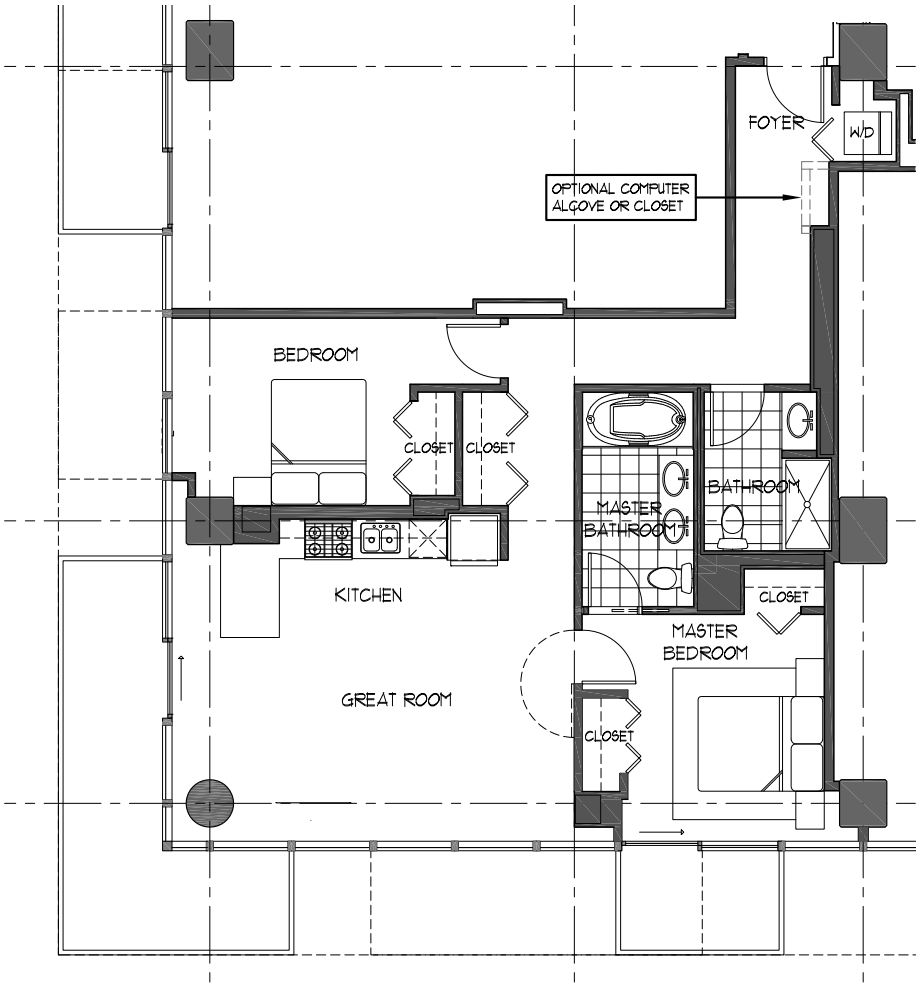
Living Room
- Place a screen or draw curtains at the end of the hall that aligns with the door so the “*qi*” does not escape the home.

Master Bedroom
- Partial height wall- add a glass window panel to make the wall feel complete which will continue to allow natural day lighting and ventilation. Having a solid wall gives support and security to the occupant while sleeping.
- A light fixture would be suitable for the bedroom from this exposed corner.

Unit 12 - 2 Bedroom + 2 bathroom + 2 Balcony = 1,089 Total Square Feet

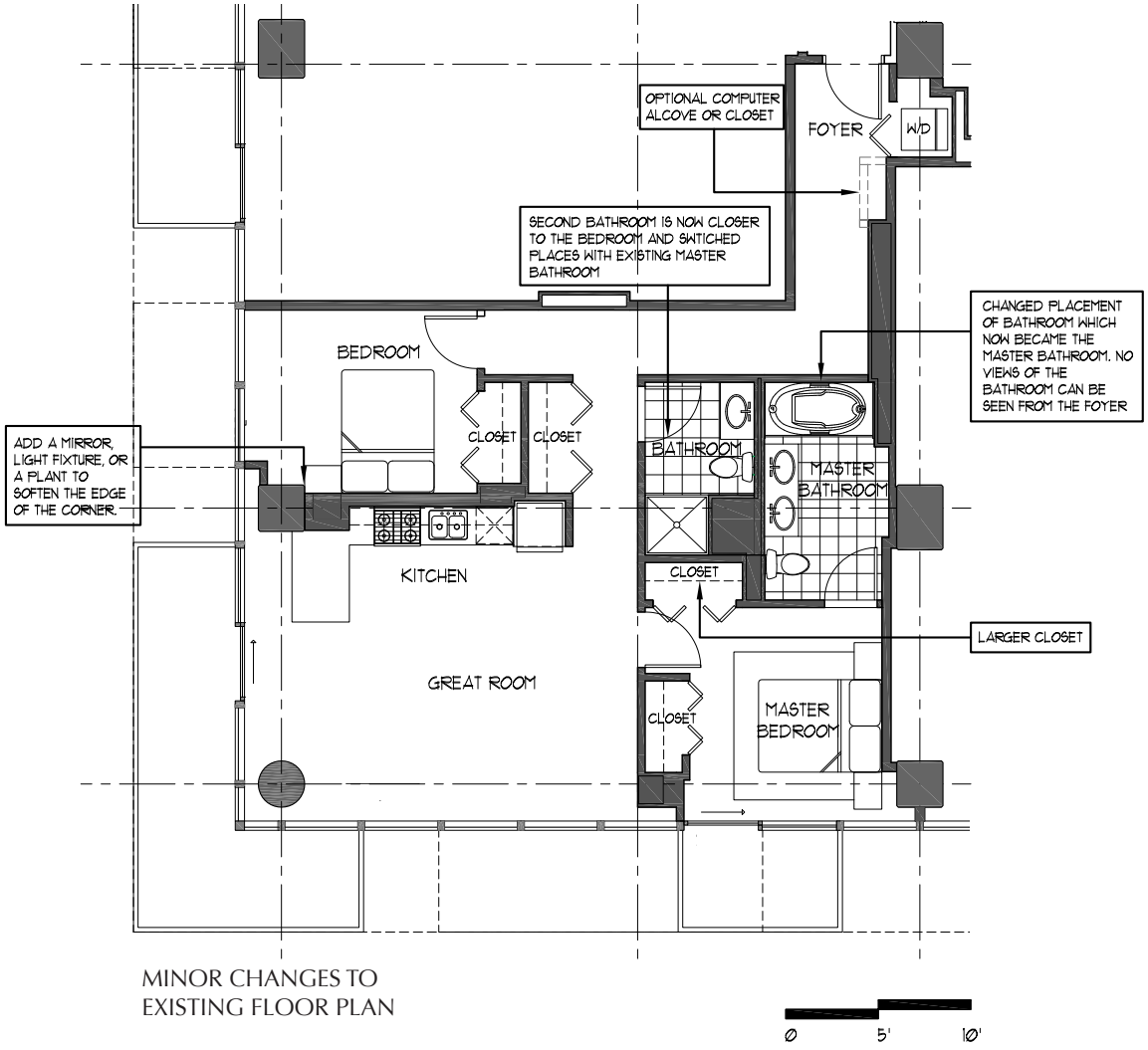
Positives
- Round column in the Great Room
- Optional computer alcove in the NE corner (Knowledge)
- 2 Bedroom
- Although the entrance is in NE corner, a straight path does not occur. A change of direction is made throughout the path.

Negatives
- Unit is shaped like a knife/clever
- Entrance/entry is in the NE (the door of the devil)
- The toilet is in the line of sight from the entrance
- Odd corners in the bedrooms
- Kitchen and child's bedroom should not be next to each other, burn out the child's growth.



EXISTING FLOOR PLAN

Unit 12 - 2 Bedroom + 2 bathroom + 2 Balcony = 1,089 Total Square Feet

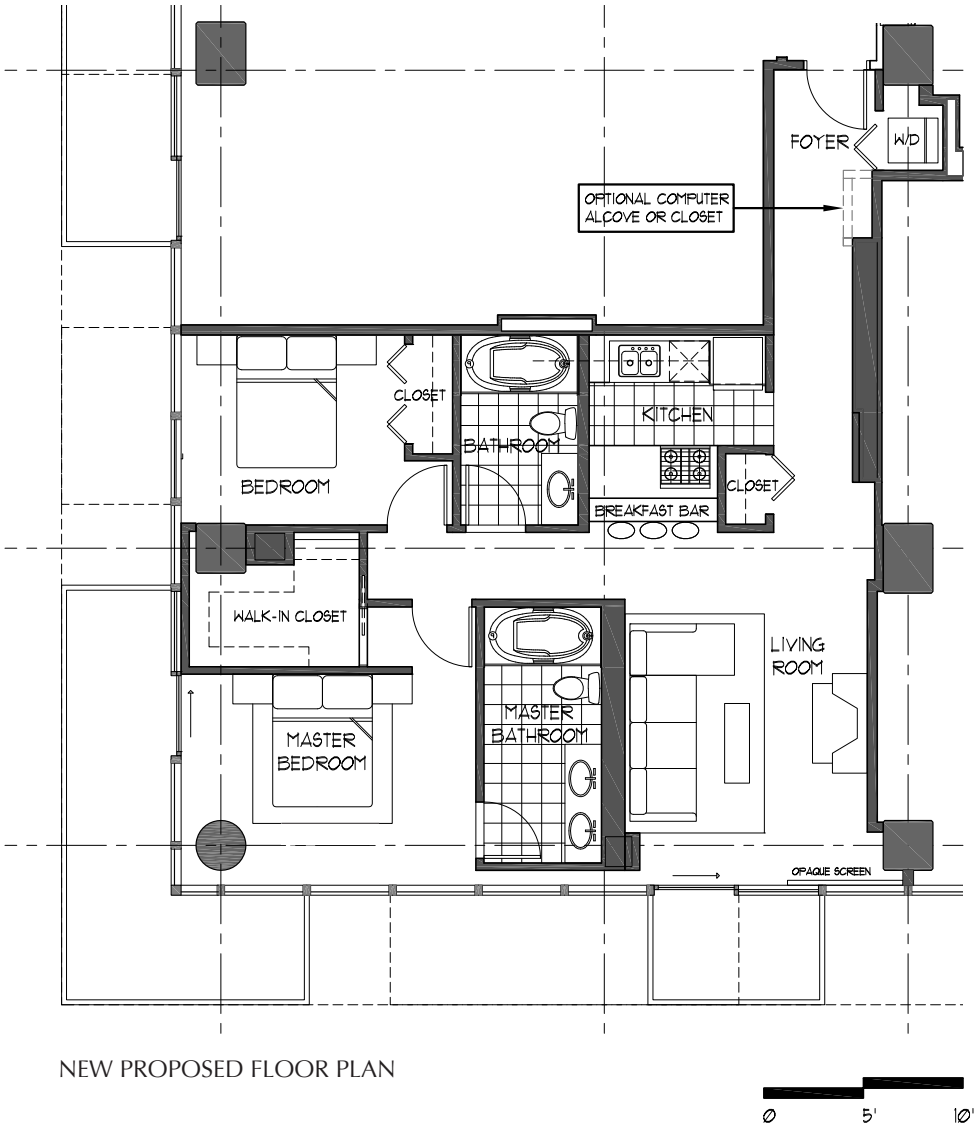


Foyer
– No longer looking at Bathroom from the foyer. Changed placement of bathroom, which became the new Master Bathroom.
– Second bathroom is now closer to the bedroom and switched place with existing Master Bathroom.

Bedroom
– Exposed column corner, add a mirror, light fixture, or plant to soften the edge of the corner

Master Bedroom
– Larger closet, because of the new placement of the Master bathroom

Unit 12 - 2 Bedroom + 2 bathroom + 2 Balcony = 1,089 Total Square Feet



NEW PROPOSED FLOOR PLAN

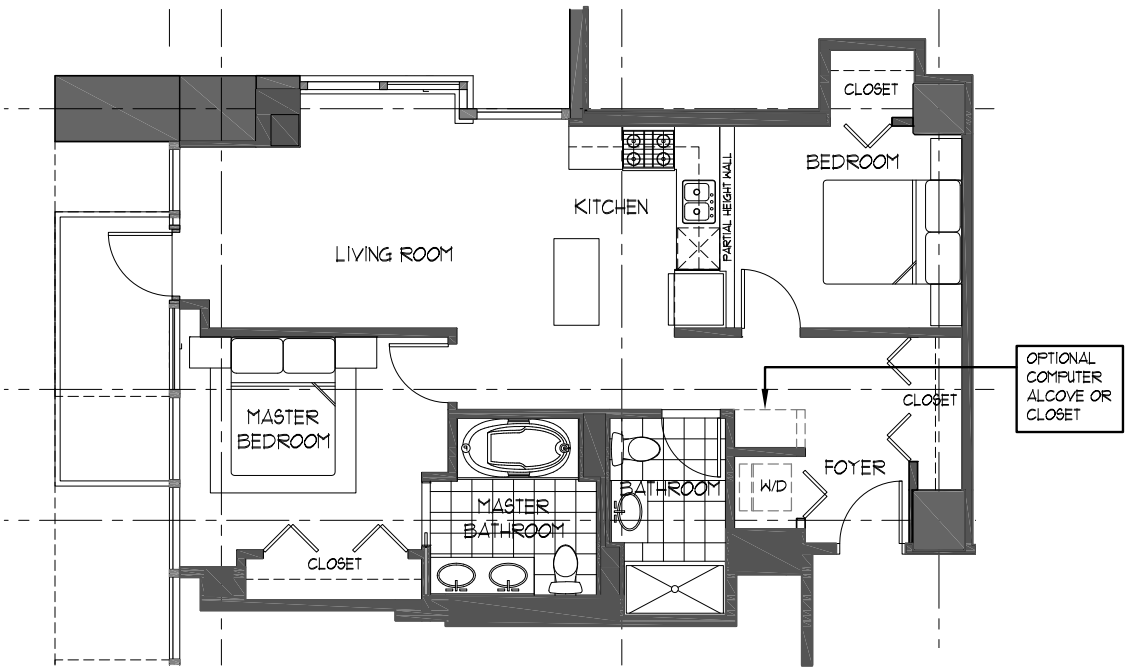
Once you enter this unit, the first thing you see in not a toilet but a decorative opaque screen. The circulation path sends you directly to the living room, while passing the galley kitchen to your right. The kitchen provides a cozy breakfast bar for three and while cooking you are in the commanding position having an overal view of your living room. Next to the kitchen are a bedroom and bathroom. Across of the bedroom is the master bedroom. The master bedroom has a walk-in closet, a master bathroom, and views to the southwest and south.

Unit 14 - 2 Bedroom + 2 bathroom + Balcony = 976 Total Square Feet

Positives
- Rectangle shaped unit
- Master bedroom is placed in the SW corner (Love & Marriage)
- Flow from the entrance to the Living Room/Kitchen is nice
- Bedroom 2 there are no odd corners, placed in the NE (Knowledge) - would be a good room for an office/study room/children bedroom
- Entrance to the unit is from the SE corner
- 2 Bedrooms

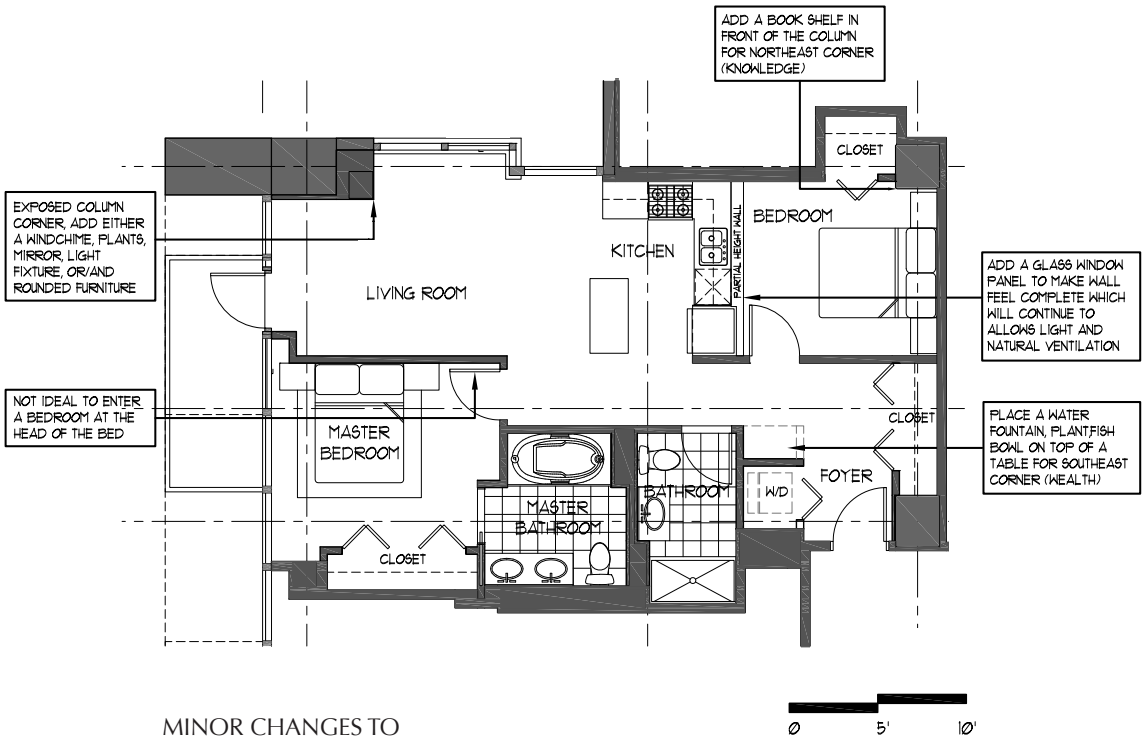
Negatives
- Odd corners in the Living Room
- Entry to the Master bedroom is from the head of the bed
- The kitchen and child's bedroom 2 next to each other, burn out the child's growth

Notes
- Overall the layout of the unit is nice and has a nice flow to it
- Partial Height wall should be extended into a full wall or add a glass fixed window to allow natural day lighting and ventilations



EXISTING FLOOR PLAN

Unit 14 - 2 Bedroom + 2 bathroom + Balcony = 976 Total Square Feet



MINOR CHANGES TO
EXISTING FLOOR PLAN

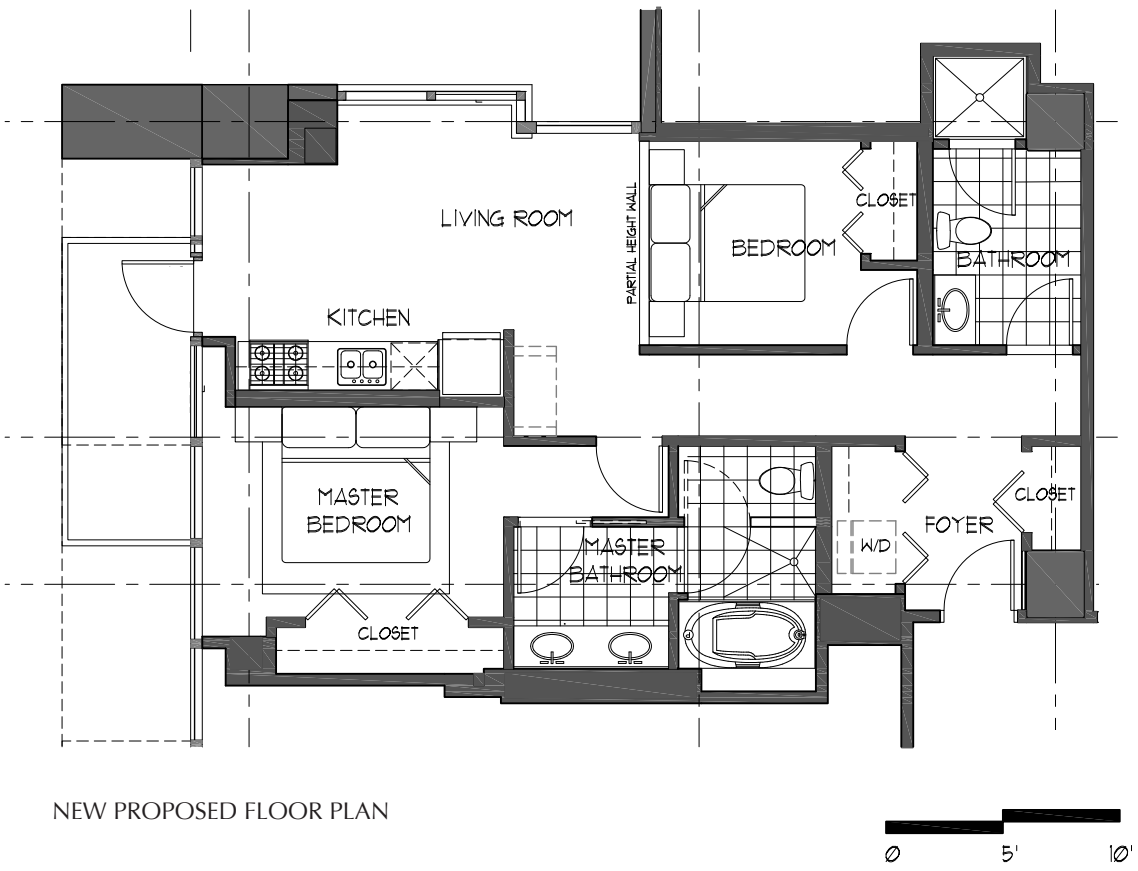
Foyer
– Place a water fountain, plant, fish bowl on top of a table for the southwest corner (Wealth and Prosperity)

Living Room
– Exposed column corner, add a wind chime, plants, mirror, light fixtures, or/and rounded furniture.

Bedroom
– Partial height wall – add a glass window panel to make the wall feel complete which will continue to allow natural day lighting and ventilation.
– Add a book shelf in front of the column for northeast corner (Knowledge)

Master Bedroom
– Not ideal to enter a bedroom at the head of the bed

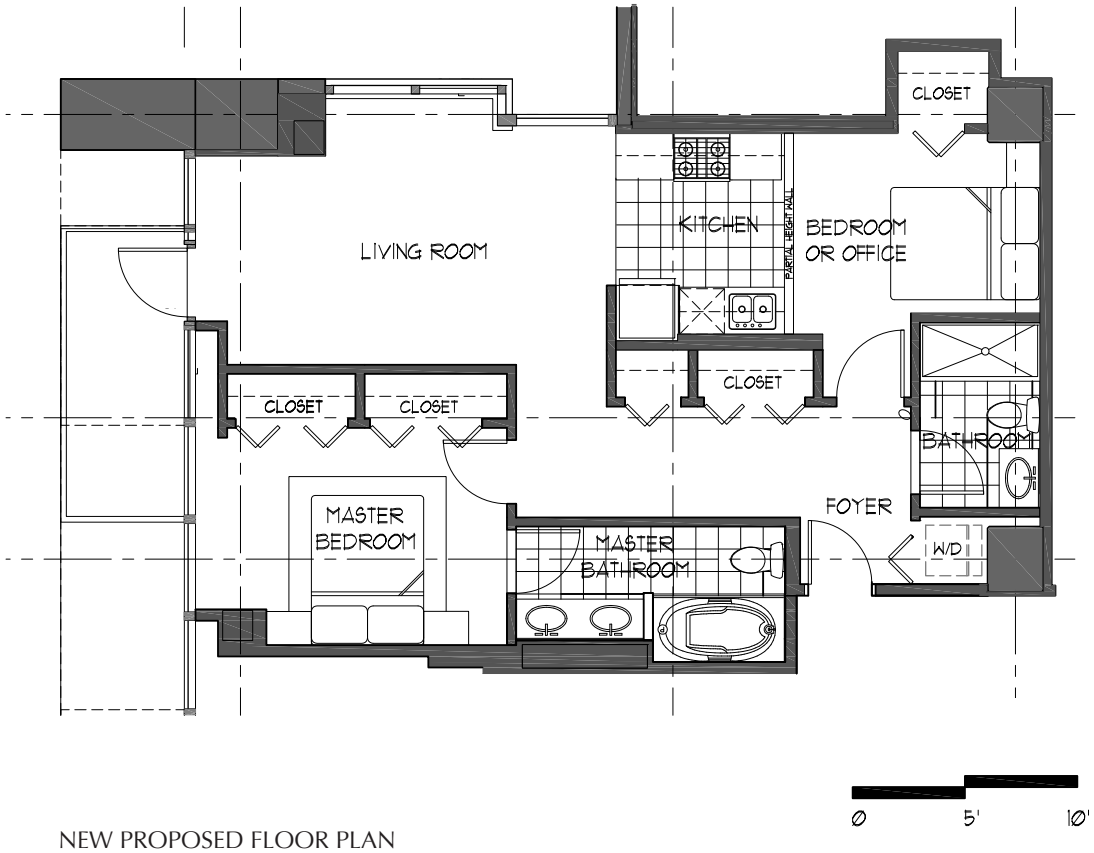
Unit 14 - 2 Bedroom + 2 bathroom + Balcony = 976 Total Square Feet



NEW PROPOSED FLOOR PLAN

As you enter the foyer, you will have an option of hanging your coat in the right or left closet. Straight ahead is a bathroom, but you are not looking directly into it or at a toilet. Next to the bathroom is a bedroom, which has a partial height wall that is closest to a window to bring in natural lighting. As you walk down the hallway, options to place a computer alcove, hang a painting, or a bookcase. Off to the left down the hall is the master bedroom. You will enter the master bedroom at the middle of the bed and the master bathroom is to the left and additional closet space is provided. The master bedroom is located in the Southwest corner (Love and Marriage). The kitchen and living room shares space for gathering and entertaining.

Unit 14 - 2 Bedroom + 2 bathroom + Balcony = 976 Total Square Feet



NEW PROPOSED FLOOR PLAN
IF ENTRY DOOR MOVED

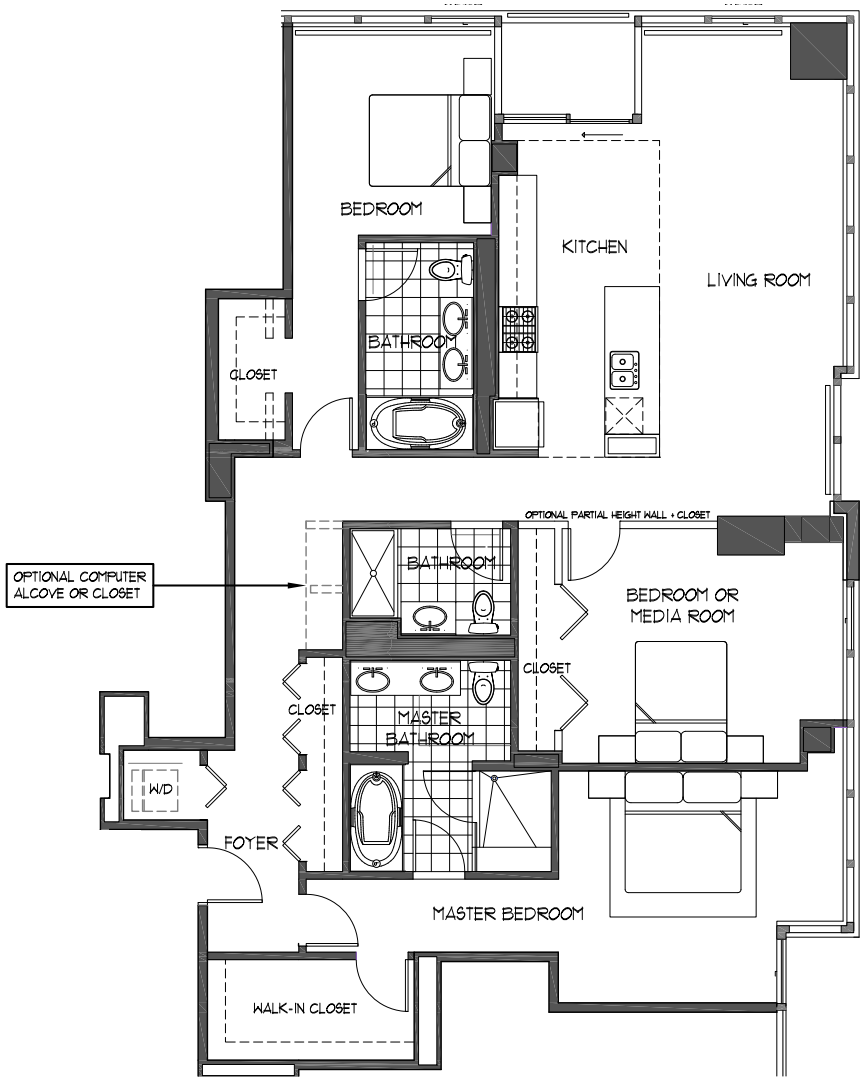
By moving the entry door, a new proposed floor plan has created another option. Off to the right of the foyer is a bathroom near the bedroom. This bedroom is located in the northeast corner; corner of "Knowledge and Skills" would be suitable for a child. Having the kitchen is next to this bedroom (child), this situation is not ideal according to fengshui. The kitchen's heat will burn the growth of the child. The galley kitchen does not draw to much attention from the living room. As you enter the master bedroom, you will enter at the foot of the bed. The master bedroom is spacious with more closet space.

Unit PH 01 - 3 Bedroom + 3 bathroom + 1 Balcony = 1,879 Total Square Feet

Positives
- Entry is West
- Rectangle shaped unit
- The flow "qi" from the entrance to the Living Room and Kitchen is not bad

Negatives
- Exposed columns/walls create sharp corners
- Master bedroom is in the wrong location (SE), should be in the SW
- Entrance Door opens directly to the door of the Master bedroom

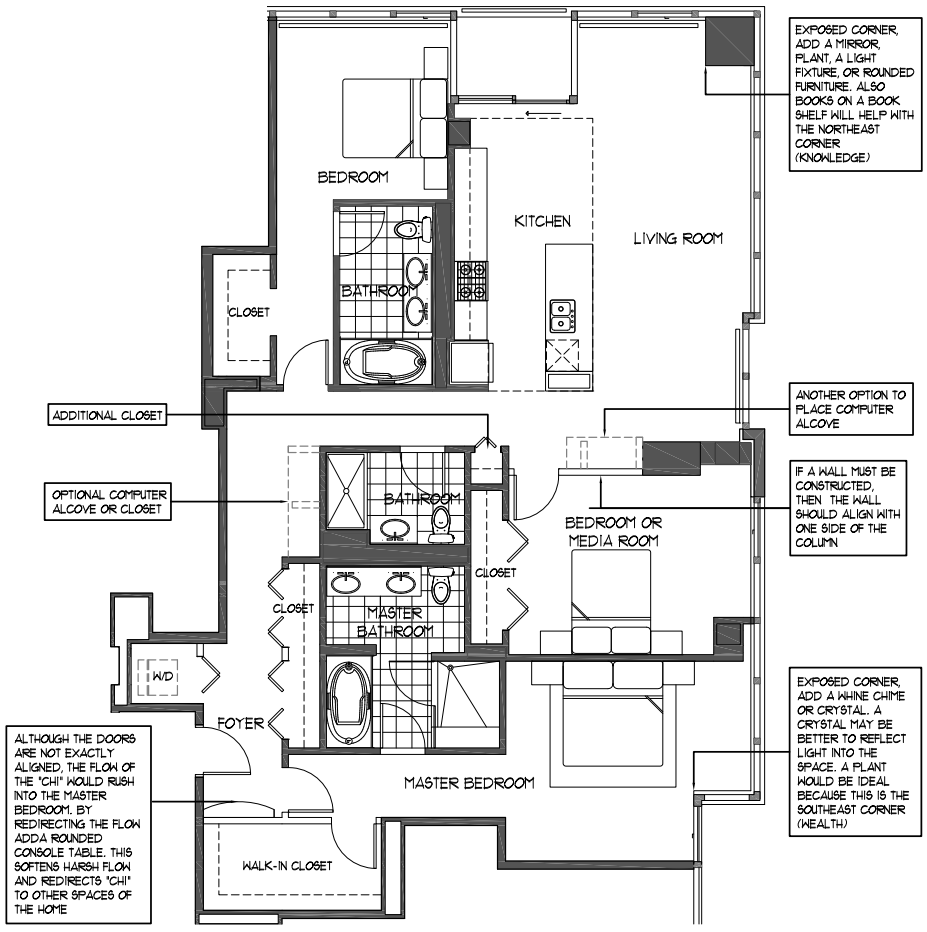
Notes:
- Balcony is a small for this unit
- Partial Height wall should be extended into a full wall or add a glass fixed window to allow natural day lighting and ventilations



EXISTING FLOOR PLAN

0 5' 10'

Unit PH 01 - 3 Bedroom + 3 bathroom + 1 Balcony = 1,879 Total Square Feet



MINOR CHANGES TO EXISTING FLOOR PLAN

Foyer
– Although the entry door and door to the master bedroom does not exactly aligned, the flow of the "*qi*" would rush into the master bedroom causing an unbalance good "qi" to the rest of the home. By redirecting the flow add a rounded console table. This softens the harsh flow and redirects the "chi" to the other spaces of the home.

Hallway
– Optional computer alcove or closet.

Living Room
– Another option to place computer alcove
– Exposed corner column, as a mirror, plant, a light fixture, wind chime, or rounded furniture. Also a bookshelf will be suitable for the northeast corner (knowledge).

Bedroom or Media room
– Partial height wall is optional depending on the owner. If a wall is to be constructed than the wall should align with one side of the column.

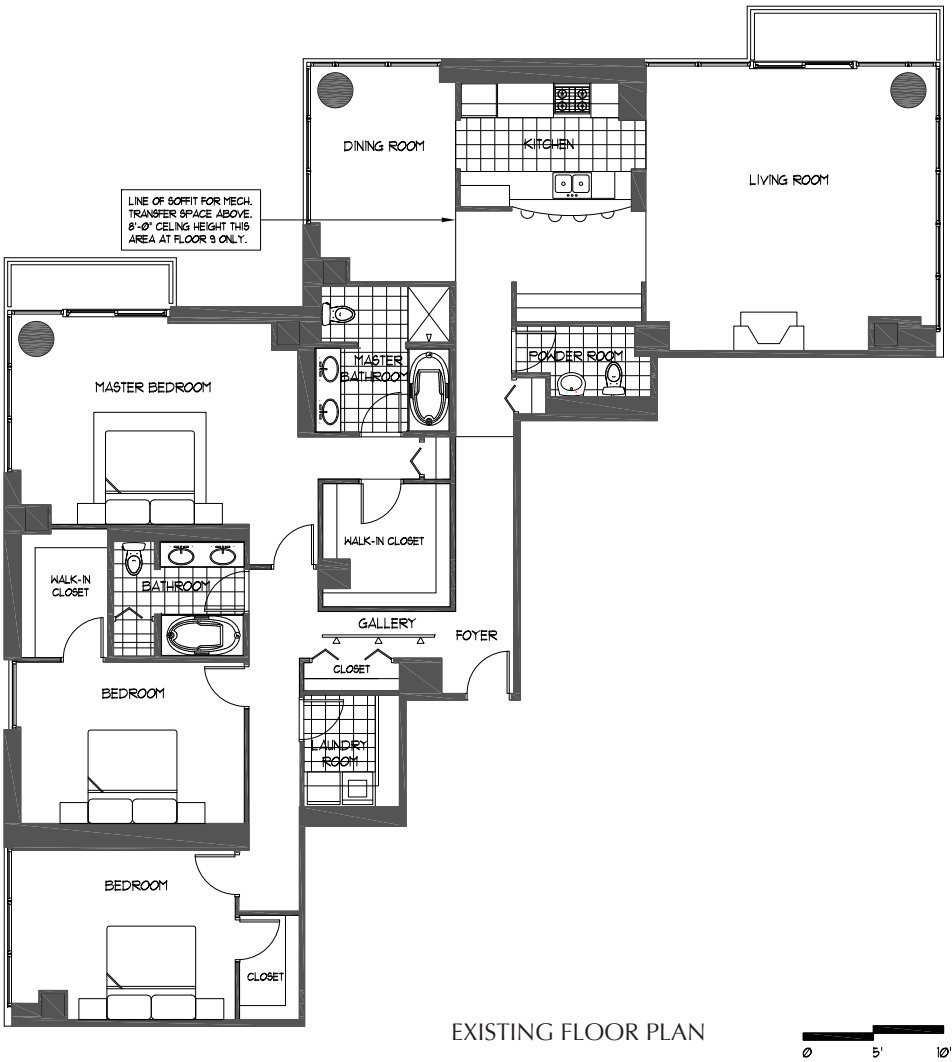
3.3.4.2 Positive & Negative Attributes for Skybridge

Four units have been selected to be analyzed; Unit A (three-bedroom), Unit C (two-story unit with 2 bedroom), Unit D (two-bedroom), Unit GH (combination unit with three bedrooms).

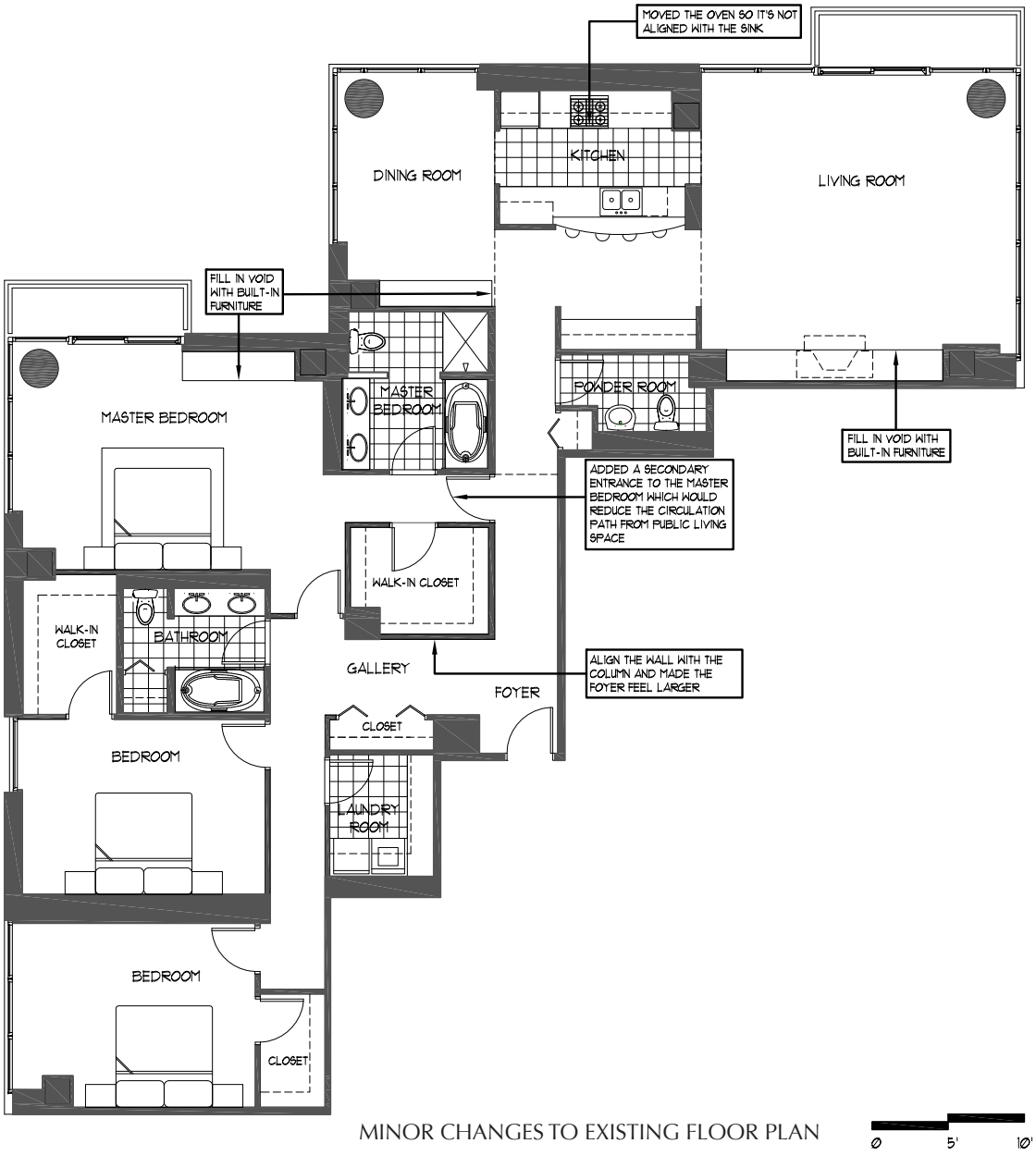
Unit A - 3 Bedroom + 2.5 bathrooms, 2,429 Total Square Feet

Positives
- Entrance to the unit is from the South
- Bedrooms are along the West corridor, SW, W, NW
- Street in the south (W. Washington Blvd.)

Negatives
- Entry hall is a long procession
- Irregular Shaped unit
- Kitchen appliances such as the stove and sink are aligned with each other (arguments between husband and wife will occur)
- Corners are present in the bedrooms
- 3 bedrooms



Unit A - 3 Bedroom + 2.5 bathrooms, 2,429 Total Square Feet

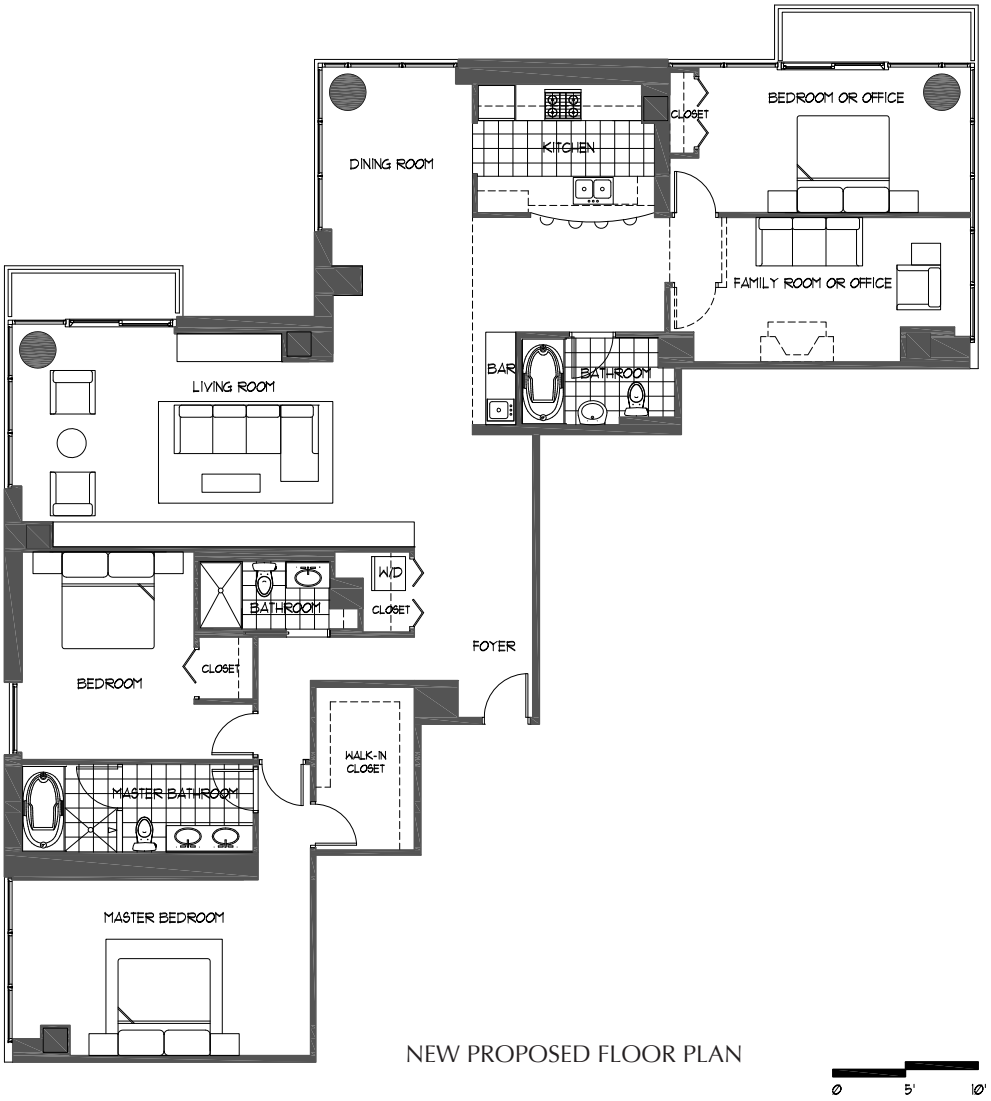


Foyer
– The foyer feels grandeur since; the wall is now aligned with the column.

Hallway
– To the left, added an secondary entrance to the Master bedroom to reduce the circulation path from the public living spaces.

Kitchen
- Moved the stove so it does not align with the sink

Unit A - 3 Bedroom + 2.5 bathrooms, 2,429 Total Square Feet

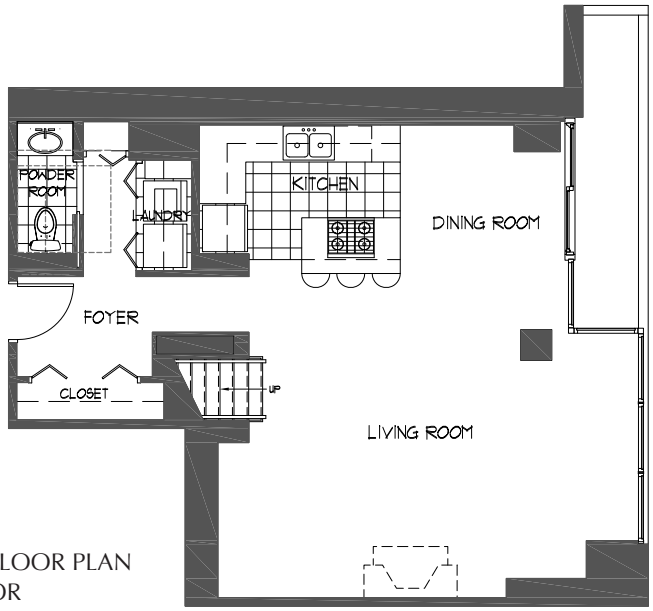


The foyer is spacious providing a sense of arrival entering from the south, bring good "*qi*" into the home. Placing a plant or water feature in line with the entry door against the wall will welcome wealth into the home. Radiating out from the foyer are two zones; public spaces (living room, dining room, & kitchen) and private spaces (master bedroom and secondary bedroom). This new proposed floor plan splits the private spaces to the end of the wings while the public spaces are centered. The master bedroom is placed properly in the southwest corner (Love and Marriage) and secondary bedroom in the west (children). In the northeast corner (Knowledge) are options of a bedroom or an office and a family room.

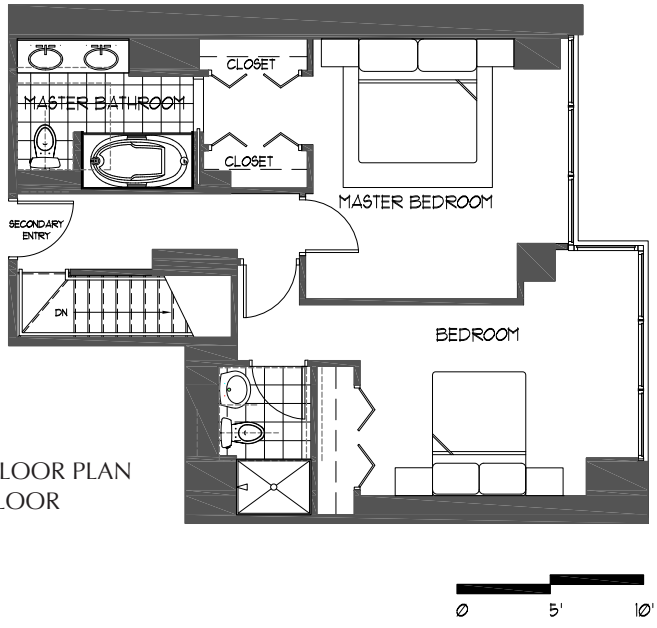
Unit C - 2 Bedroom + 2.5 Bathroom + 1Balcony = 1,512 Total Total Square Feet

Positives
- Entrance to the unit is from the West
- The stairs are not in aligned with the path of the entrance
- Streets and Freeways (rivers) are visible
- City views
- Public spaces are on the first floor

Negatives
- Square columns in the middle of the Living and Dining Room
- Kitchen appliances such as the stove and sink are back to back with each other (husband and wife will get into arguments and fights) - should change placements
- Corners are exposed in the Public spaces

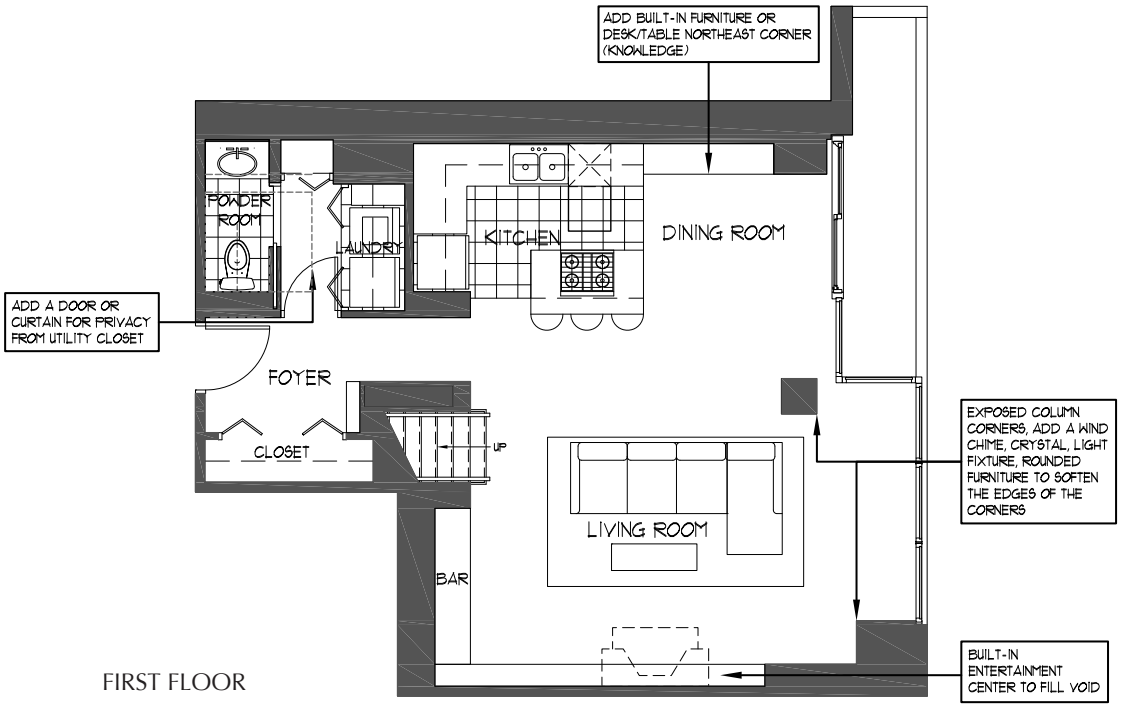


EXISTING FLOOR PLAN
FIRST FLOOR

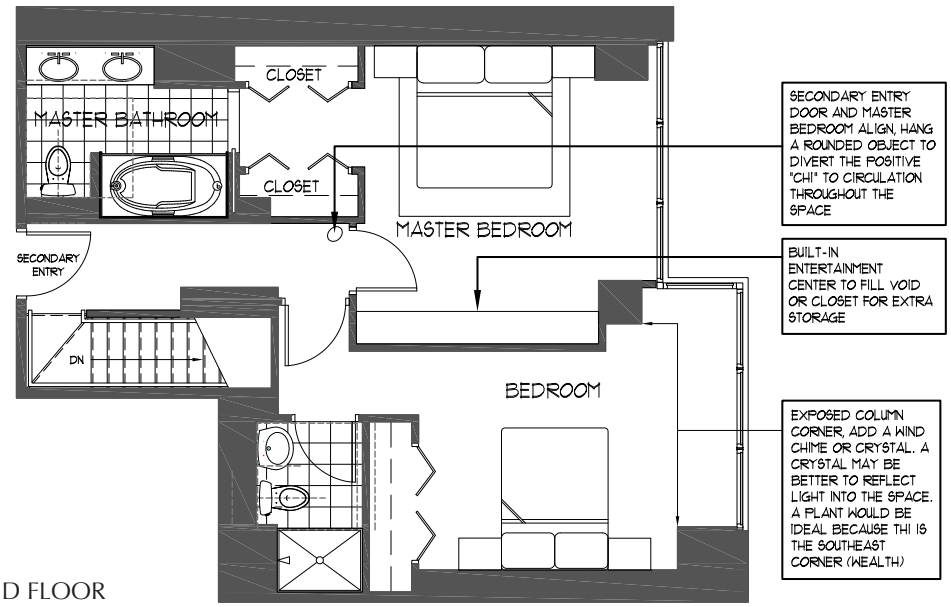


EXISTING FLOOR PLAN
SECOND FLOOR

Unit C - 2 Bedroom + 2.5 Bathroom + 1Balcony = 1,512 Total Total Square Feet

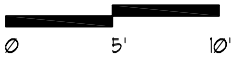


FIRST FLOOR

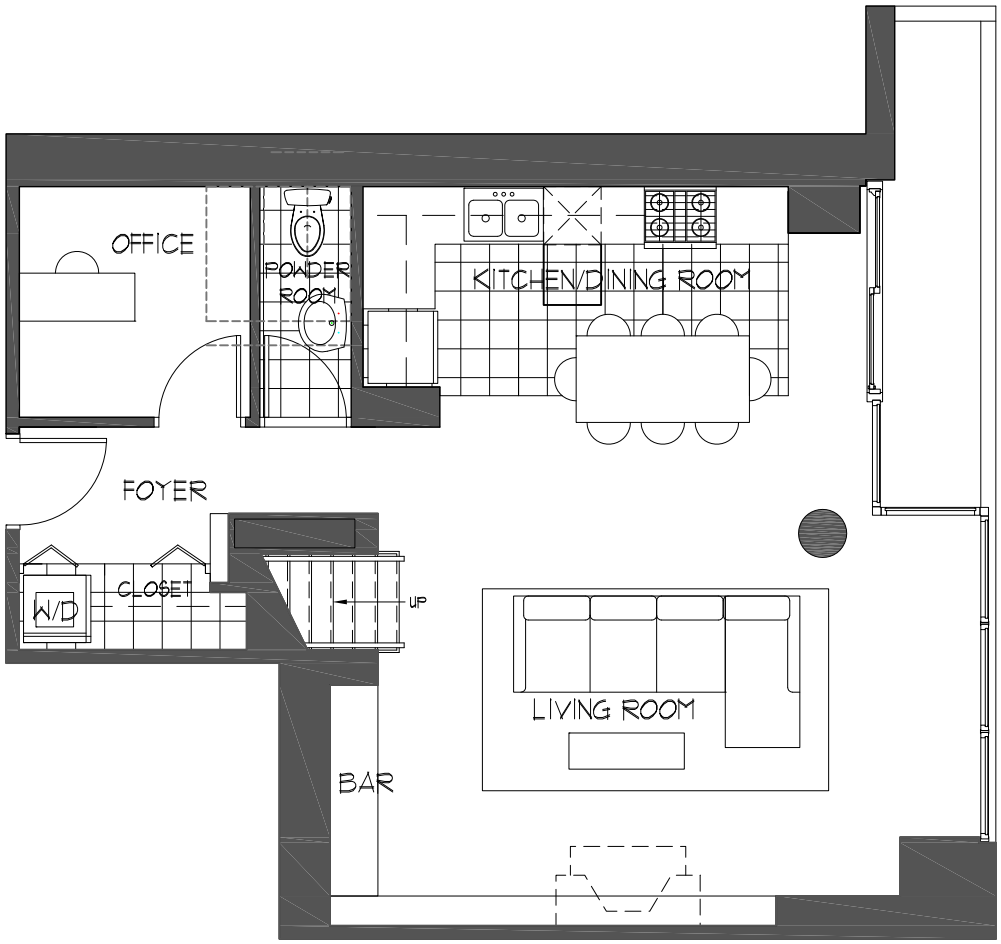


SECOND FLOOR

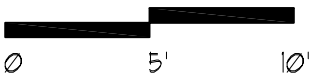
MINOR CHANGES TO EXISTING FLOOR PLANS



Unit C - 2 Bedroom + 2.5 Bathroom + 1Balcony = 1,512 Total Total Square Feet

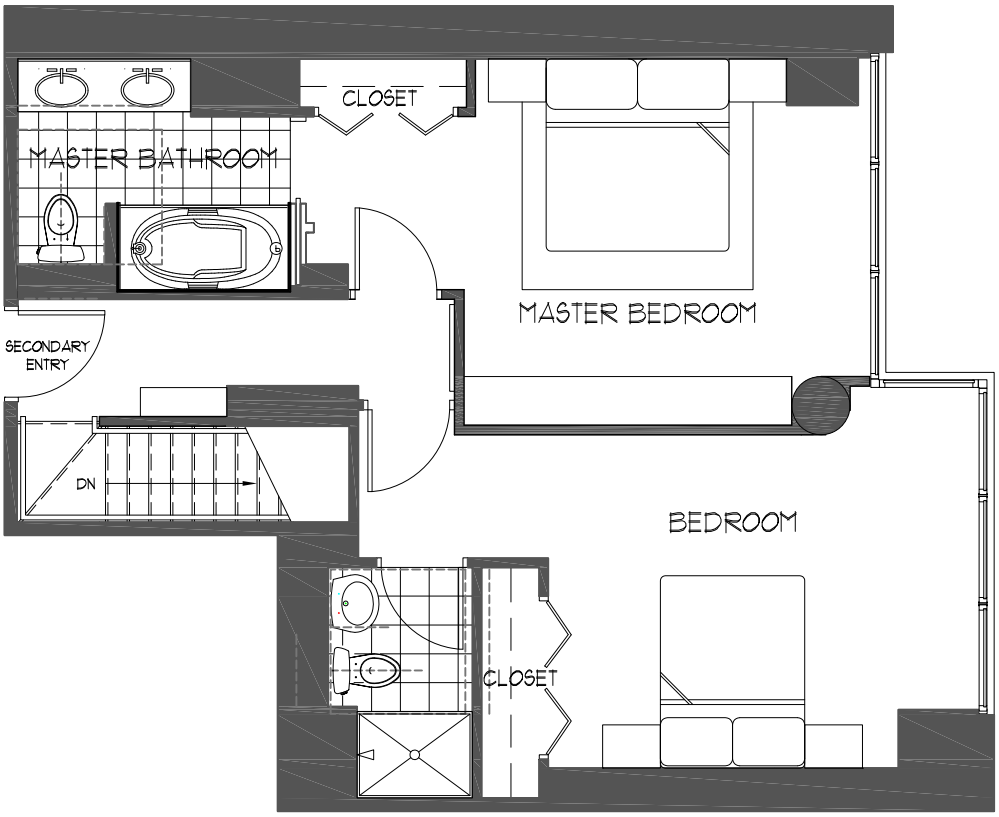


PROPOSED FLOOR PLAN
FIRST FLOOR



The foyer is straight forward leading you to the public spaces (kitchen, dining, living room). The kitchen and dining room are together, sharing similar qualities surrounding food. By condensing the utility room an office was created in the northwest corner (travel), providing the owner a room to work from home. The rounded exposed column replaced the square column, which corners are “poison arrows or daggers.”

Unit C - 2 Bedroom + 2.5 Bathroom + 1Balcony = 1,512 Total Total Square Feet



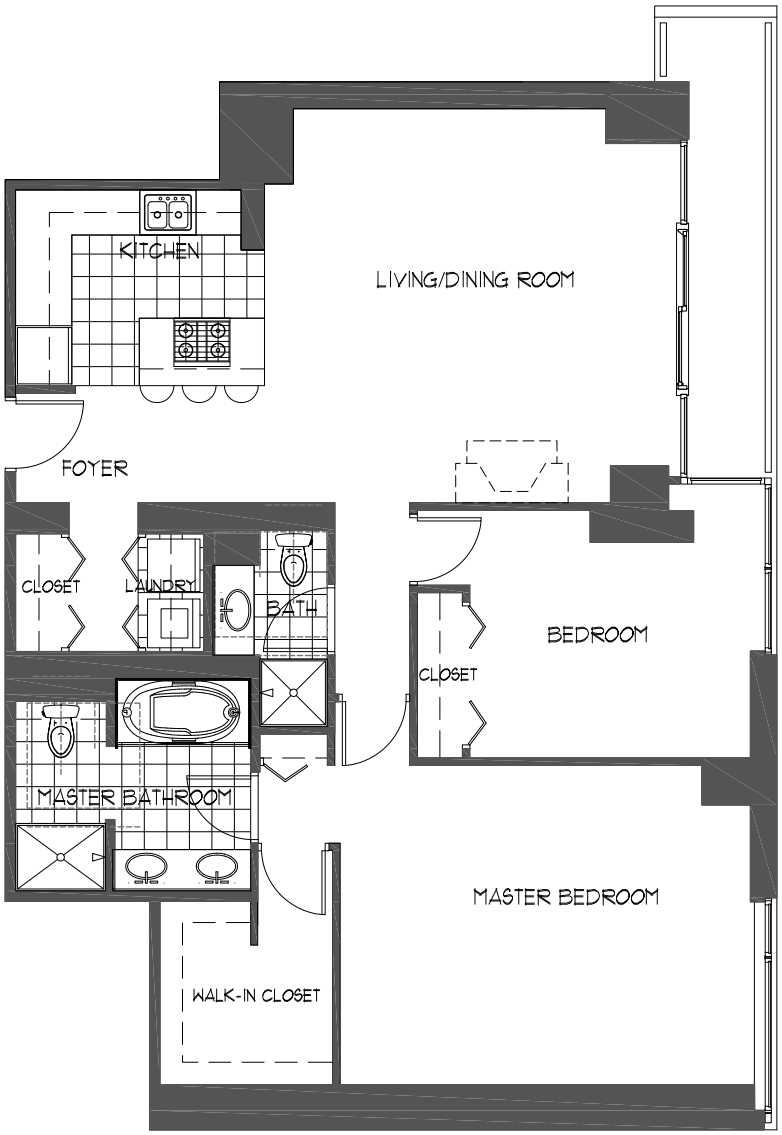
PROPOSED FLOOR PLAN
SECOND FLOOR

Upstairs (second floor) are located the private spaces of the master bedroom and bedroom. The entries of both bedrooms are aligned with each other and not with the secondary entry to the unit. As you enter the master bedroom you are entering at the foot of the bed. Since the placement of the master bedroom door has changed, less closet space is provided. A round column replaced the square column eliminating some corners in the bedrooms, although there are a few corners existing due to the structure of the building. Placing plants, a light fixture, mirror, water feature, or rounded furniture so alleviate the corner "poison arrows or daggers" dilemma.

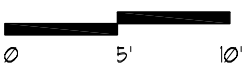
Unit D - 2 Bedroom + 2.5 Bathroom + 1Balcony = 1,512 Total Square Feet

Positives
- Rectangle shape unit
- Entrance to the unit is from the West
- Owner of the has a broad view of space while cooking in the kitchen

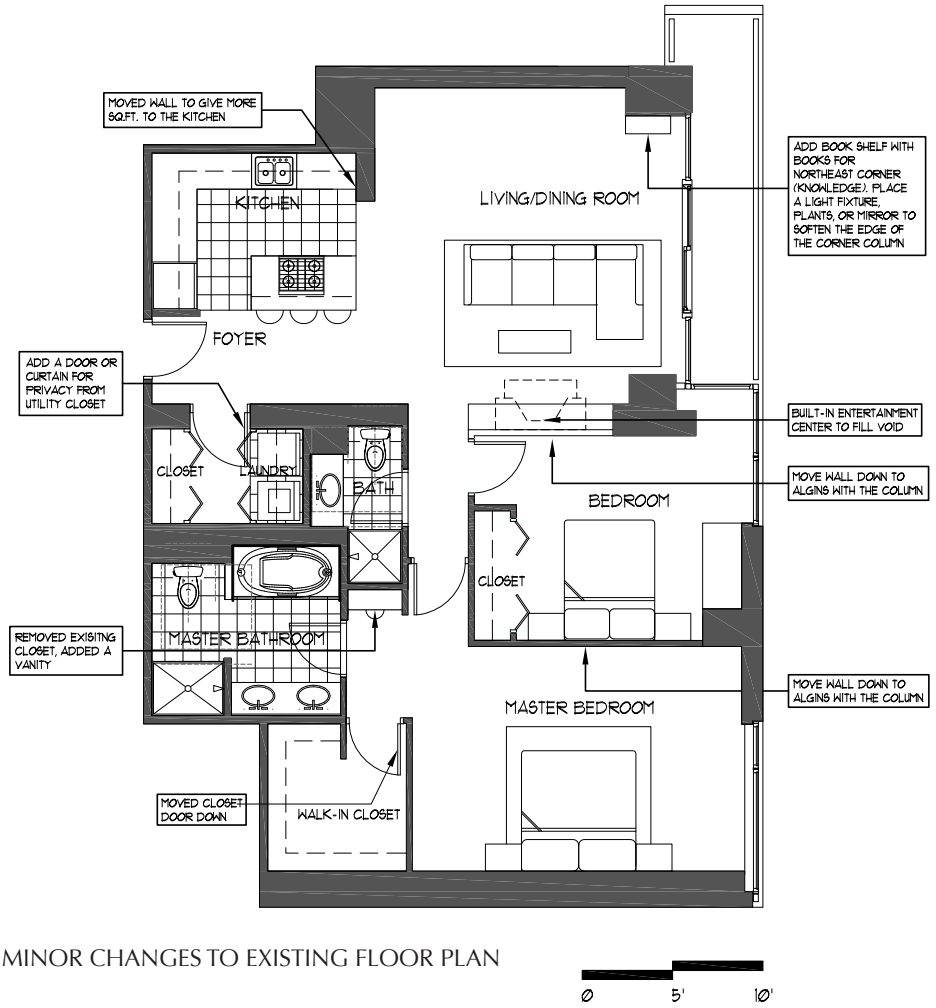
Negatives
- Kitchen is next to the entrance (Indicates people will come over to eat, eating problems, obesity, digestions, etc.)
- Odd corners in Master bedroom, bedroom 2, and in Living/Dining room.
- Although the corners in bedroom are not pointing at occupant



EXISTING FLOOR PLAN



Unit D - 2 Bedroom + 2.5 Bathroom + 1Balcony = 1,512 Total Square Feet



MINOR CHANGES TO EXISTING FLOOR PLAN

Foyer
- Utility closet, add a door or curtain for privacy.

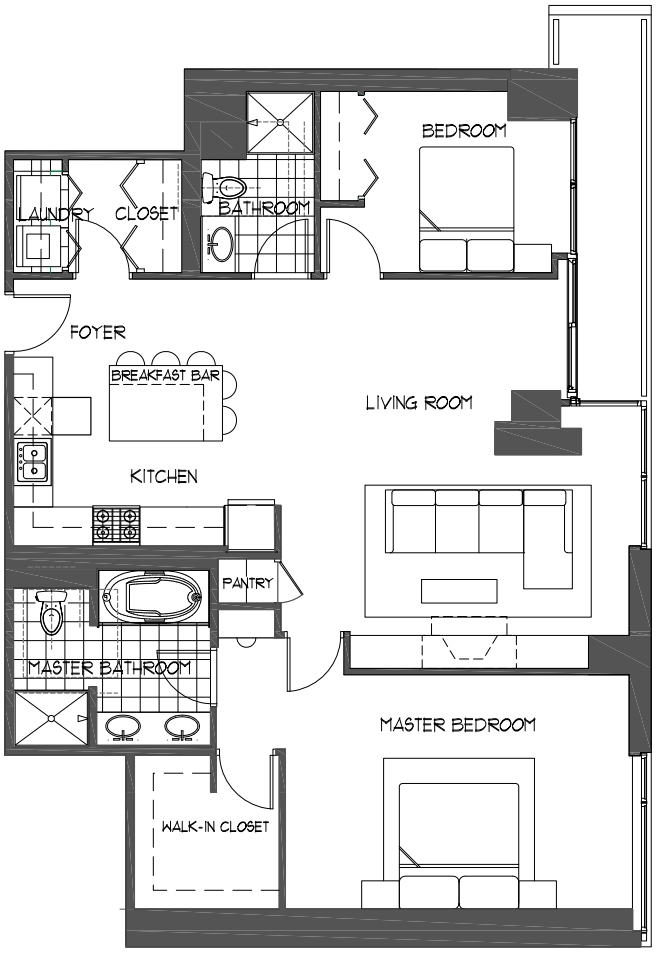
Kitchen
- Moved all to give more square footage to the kitchen.

Living/Dining Room
- Add a bookshelf with books for the northeast corner (Knowledge). Place a light fixture, plants, or mirror to soften the edge of the corner column.
- Add built-in entertainment center to fill in void near the column.

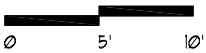
Bedroom
- Move wall down to align with the edge of the column.

Master bedroom
- Move wall down to align with the edge of the column.
- Removed existing closet and added a vanity.
- Moved the walk-in closet door down.

Unit D - 2 Bedroom + 2.5 Bathroom + 1Balcony = 1,512 Total Square Feet



NEW PROPOSED FLOOR PLAN

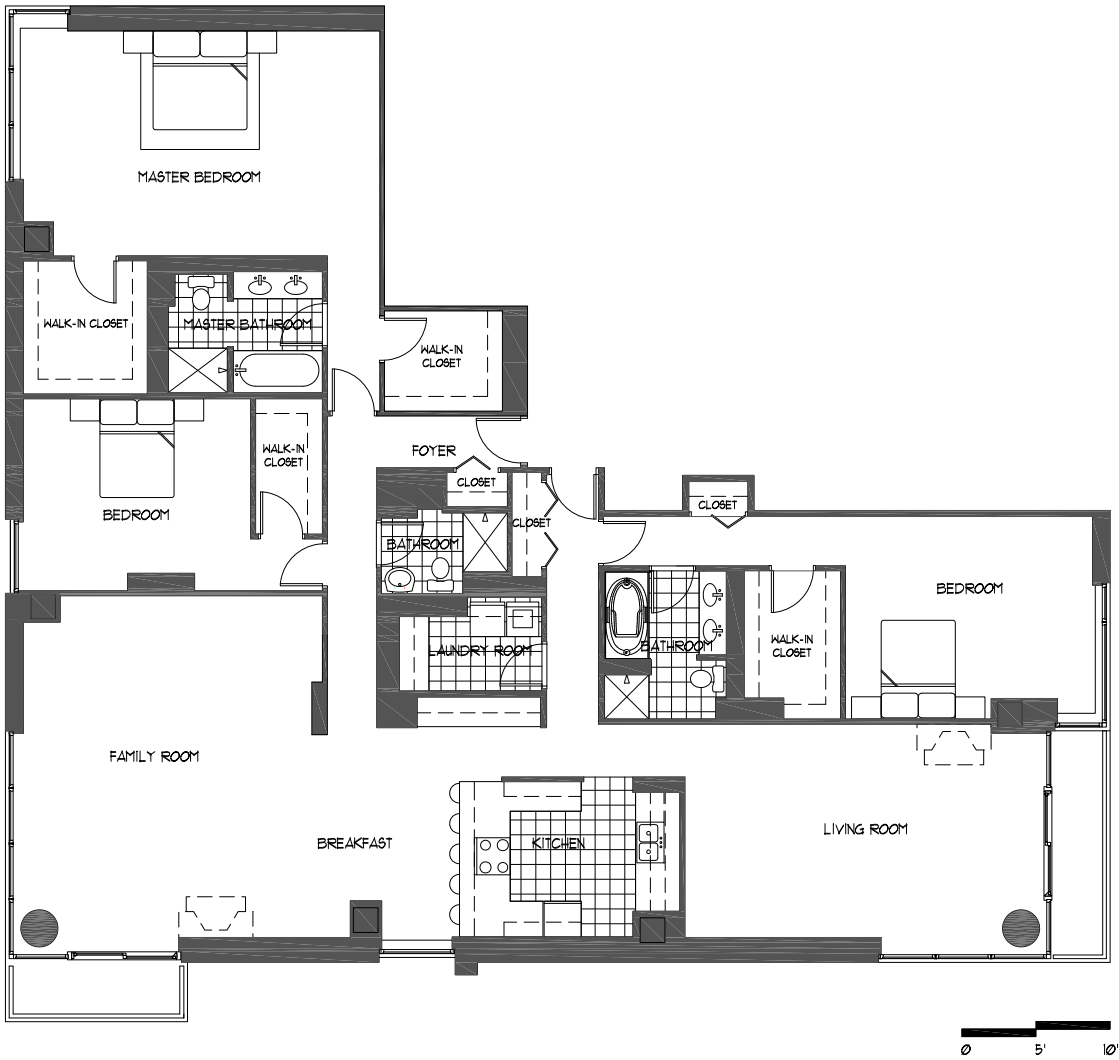


This new proposed floor plan shows the kitchen and living room as the most dominating spaces being in the center of the unit, splitting the private spaces (master bedroom and bedroom). Since the kitchen is the first space you enter, it could be looked at as a negative sign of obesity, indigestion, and unhealthy eating habits. On the other hand it could be a positive notion where entertaining and gathering of friends and family in this space. The bedroom is located in the northeast corner (knowledge) suitable for a child or changed for an office or study room. The master bedroom occupies the south direction (SW – Love and marriage, S – fame and reputation, SE – wealth). By incorporating the corresponding colors to the direction and a plant or water fountain in the southeast, this master bedroom would be fengshui proper.

Unit GH - 3 Bedroom + 3.5 bathrooms + 2 Balconies = 3,133 Total Square Feet

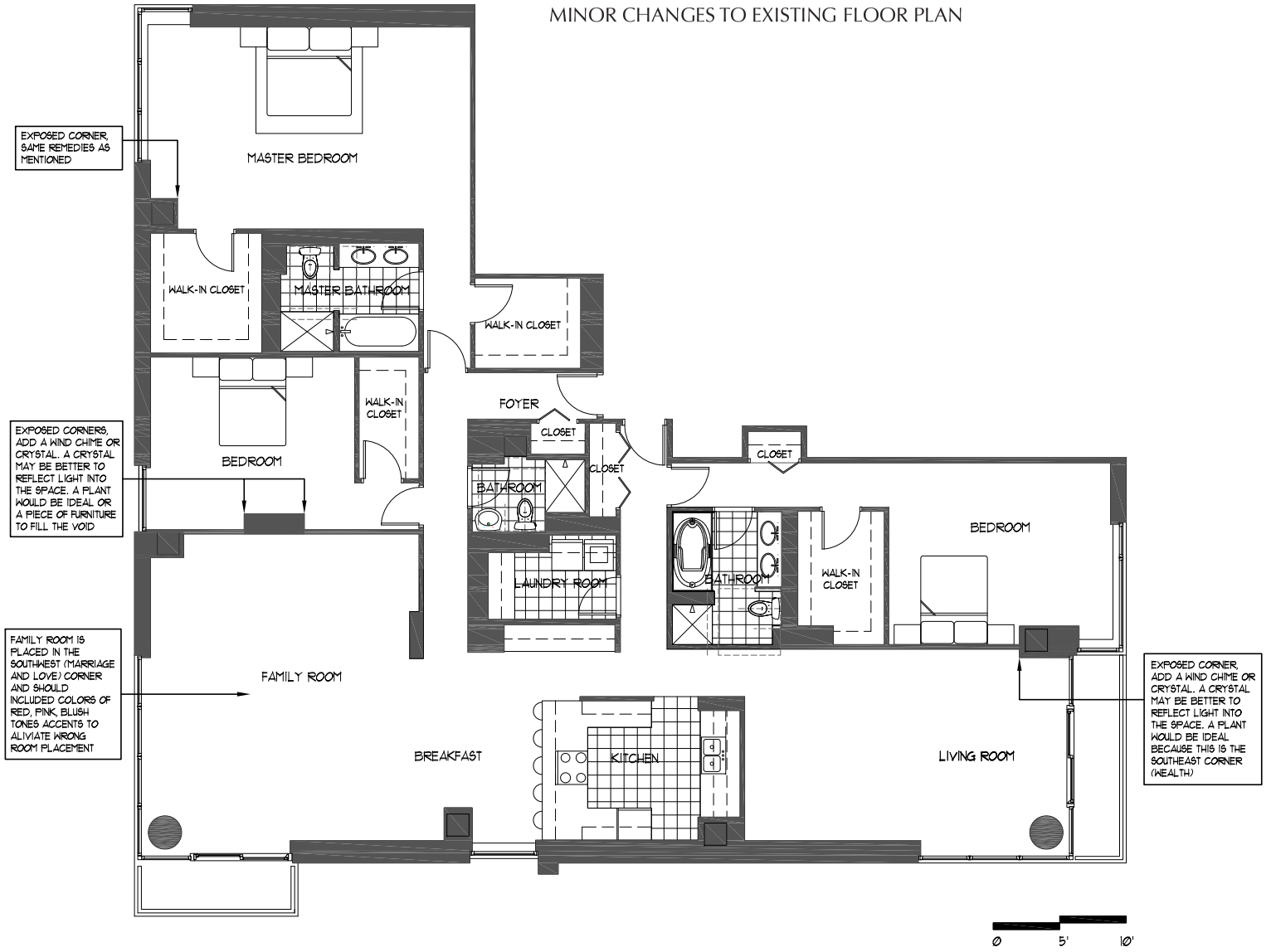
Positives
- Bedrooms are along the West corridor, SW, W, NW.

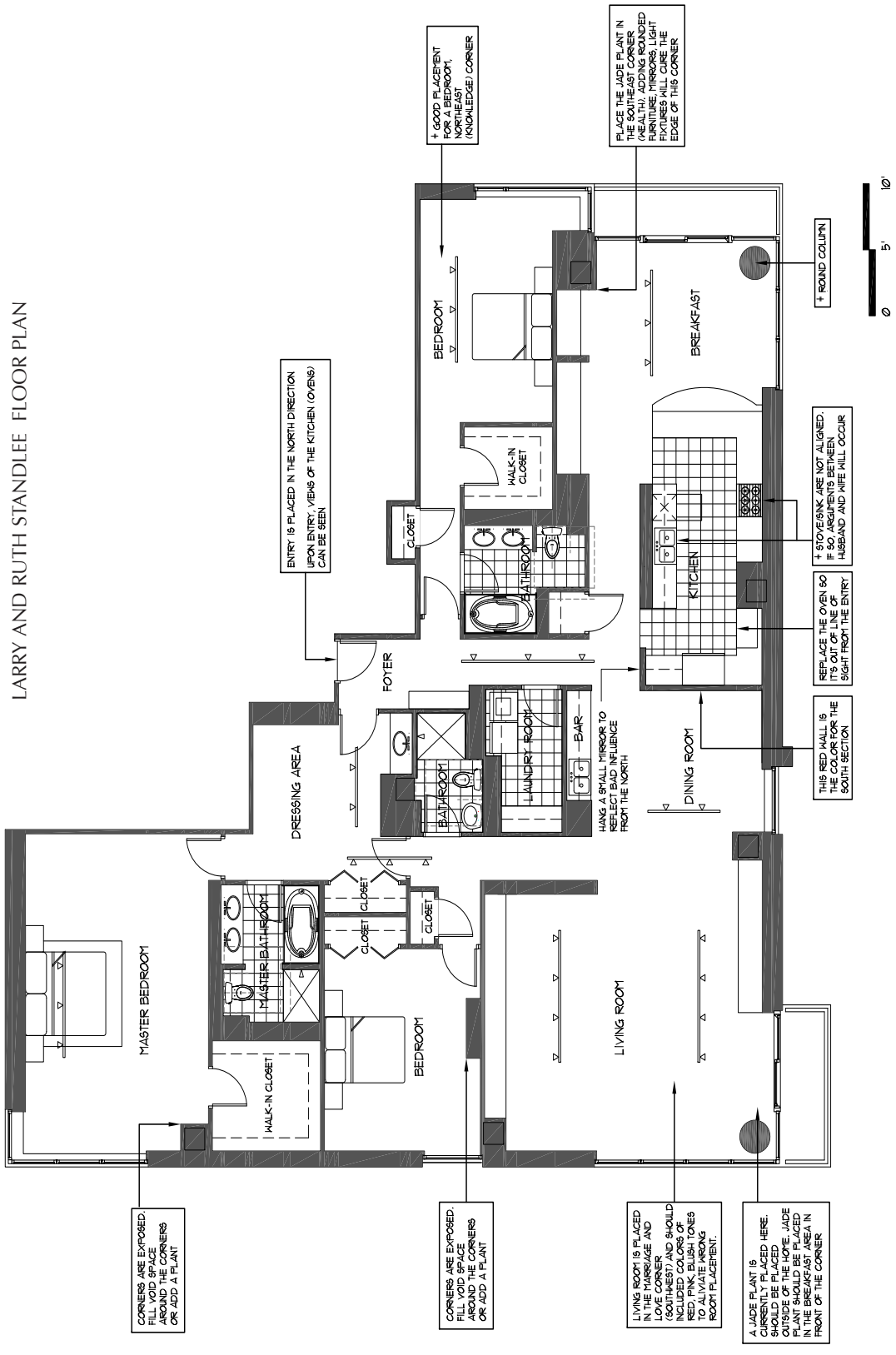
Negatives
- Kitchen is next to the entrance (Indicates people will come over to eat, eating problems, obesity, digestions, etc.)
- Odd corners in Master bedroom, bedroom 2, and in Living/Dining room.
- Although the corners in bedroom are not pointing at occupant



EXISTING FLOOR PLAN

MINOR CHANGES TO EXISTING FLOOR PLAN




LARRY AND RUTH STANDLEE FLOOR PLAN
+ GOOD PLACEMENT FOR A BEDROOM, NORTHEAST (KNOWLEDGE) CORNER
PLACE THE JADE PLANT IN THE SOUTHEAST CORNER (WEALTH). ADDING ROUNDED FURNITURE, MIRRORS, LIGHT FIXTURES WILL CURE THE EDGE OF THIS CORNER
+ ROUND COLUMN
ENTRY IS PLACED IN THE NORTH DIRECTION UPON ENTRY, VIEWS OF THE KITCHEN (OVENS) CAN BE SEEN
BEDROOM
BREAKFAST
HALK-IN CLOSET
CLOSET
BATHROOM
KITCHEN
+ STOVE/SINK ARE NOT ALIGNED. IF SO, ARGUMENTS BETWEEN HUSBAND AND WIFE WILL OCCUR
REPLACE THE OVEN SO IT'S OUT OF LINE OF SIGHT FROM THE ENTRY
FOYER
DRESSING AREA
LAUNDRY ROOM
BAR
BATHROOM
HANG A SMALL MIRROR TO REFLECT BAD INFLUENCE FROM THE NORTH
DINING ROOM
THIS RED WALL IS THE COLOR FOR THE SOUTH SECTION
MASTER BEDROOM
MASTER BATHROOM
CLOSET
CLOSET
CLOSET
WALK-IN CLOSET
BEDROOM
LIVING ROOM
0
5'
10'
CORNERS ARE EXPOSED. FILL VOID SPACE AROUND THE CORNERS OR ADD A PLANT
CORNERS ARE EXPOSED. FILL VOID SPACE AROUND THE CORNERS OR ADD A PLANT
LIVING ROOM IS PLACED IN THE MARRIAGE AND LOVE CORNER (SOUTHWEST) AND SHOULD INCLUDED COLORS OF RED, PINK, BLUSH TONES TO ALIVIATE WRONG ROOM PLACEMENT.
A JADE PLANT IS CURRENTLY PLACED HERE. SHOULD BE PLACED OUTSIDE OF THE HOME. JADE PLANT SHOULD BE PLACED IN THE BREAKFAST AREA IN FRONT OF THE CORNER

3.3.5 Conclusion

Understanding and encompassing the practice of *fengshui* principles goes beyond the surface of architecture. As time passed, knowledge and the practice of *fengshui* expanded and found applications of *fengshui* here in the United States. Typically, the principles were applied to single-family houses, but with our growing population, *fengshui* has been applied to high-rise commercial and residential buildings. Perkins + Will's portfolio of architecture ranges from K-12 education facilities to mix-use building complexes. Perkins + Will provided two case studies, both of which are multi-family residential high-rise building in Chicago, Illinois: 235 West Van Buren and Skybridge. Through site visits and studying eight units, I was able to analyze the *fengshui* of each floor plan. Without changing the integrity of the structure of the building, minor changes and new proposed floor plans were created for most of the units, and showed possibilities of improving the *fengshui* "good - *qi*" of each unit. The analysis exercises the many types of solutions in different floor plans, which leads to living in a *fengshui* proper home.

CHAPTER 4

4.1 Hawai‘i’s Geology and Nature

The islands of Hawai‘i have their own unique story and beauty to share with the world. It is intriguing to explore the Hawaiian Island’s geology and history through its found glories and rich history. The State of Hawai‘i is the only state of the United States that is not geographically attached to the continent of North America and is completely surrounded by the Pacific Ocean. Hawai‘i is an archipelago that does not have a straight line in its state boundary. The “*Aloha*” 50th State also had a royal monarchy and native Hawaiian indigenous people who are still prevalent today, not like any other state in the country.

4.1.1 Formations of the Volcanic Hawaiian Islands

In the world of the Hawaiians, man and nature were intimately related and all things reflected the presence of the gods. The origin of man was tied to the origin of the islands, with landforms, plants, animals and humans finding expression as individuals in a larger family of life and creation. The beginnings of island life as told in the *Kumulipo* creation chant. Living as close to nature as they did, Hawaiians depended on keen observation and a thorough understanding of how that world worked. In the *Kumulipo*, a universe of darkness moves steadily toward light and completion. Land rises from the ocean, lower life forms gather on the shore, and larger creatures begin to appear: fish,

insects, birds, and amphibians.[140]

Elements of the *Kumulipo* are common to many Polynesian mythic traditions: the sky father *Wakea* and earth mother *Papa* giving birth to the islands, the gods *Kane* and *Kanaloa*, the demi-god *Maui* playing the role of usurper. In the lists of genealogy, which form the bulk of the chant, chiefs are related to the stars and mankind has strong ties to mankind's brother *Haloa*, who takes form as the *kalo*, or taro, plant. In this way, a web of lineage links Hawaiians of the present moment to Hawaiians of the past, to the plants and animals of their environment, to the land itself, and to planets and stars in the sky.[141]

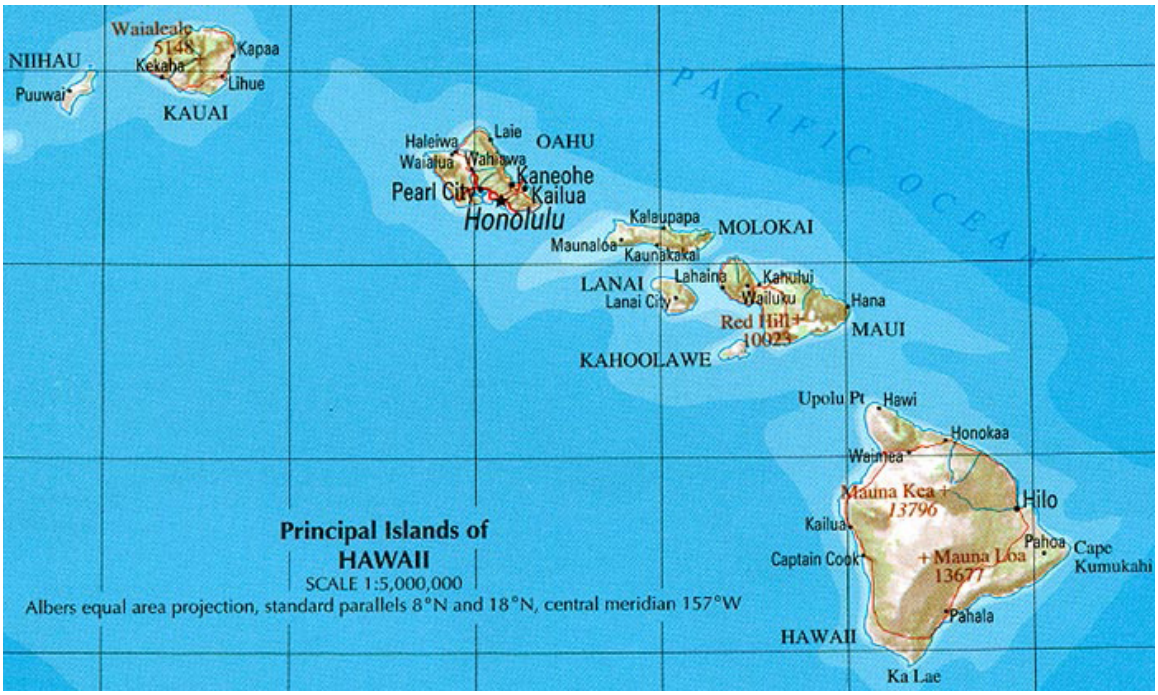


Figure 26: A map of the Hawaiian Islands
http://www.vbmap.org/america-maps-5/map-hawaii-186/

The Hawaiian Islands are situated near the middle of the "Pacific Plate" on top of a "hot spot" always moving northwestward at the rate of several centimeters. The Hawaiian Hot Spot lies in the mantle under, or just to the south, of the Big Island of Hawai'i, where two active sub aerial volcanoes and one active submarine volcano reveal its productivity. Centrally located in the Pacific plate, the hot spot is the singular source of the Hawaiian

140 "Cosmology," Info Grafik Inc, 2010, <http://www.hawaiihistory.org/index.cfm?fuseaction=ig.page&CategoryID=276> (2 November 2010).
141 Ibid.

Island Archipelago and its northern arm, the Emperor Seamount Chain.[142] The chain of volcanic islands (Hawaiian archipelago) consists of 124 islets stretching from the Big Island of Hawai‘i along a northwest line for 1,500 miles toward Japan and the Aleutian Islands of Alaska. In total, the islands spread across an area of 6,459 square miles.[143] The eight main Hawaiian islands in the state are (from east to west): Hawai‘i, Maui, Kaho‘olawe, Lana‘i, Moloka‘i, O‘ahu, Kaua‘i, and Ni‘ihau, make up 99% of the land area of the Hawaiian Archipelago.[144]

The main landmass of these islands is made from great shield volcanoes built by successive flows of lava *pahoehoe* and *‘a‘a*.[145] The volcano creates thin new sheets of hot fluid magma from the earth’s crust spilling over the old layers of cooled lava, thus building and building until the volcanic heads emerged from the sea. These mountains often would have flows that overlapped the other mountain’s flows, and eventually peaks would become the single island that we see today.[146] Alkalic basalts dominate the earliest submarine pre-shield building stage; with a transition to tholeiitic basalt that occurs as the volcano grows and approaches sea level.[147] An example of this action is currently happening under the Pacific Ocean, the newest forming island Loihi. Loihi is located southeast of Mauna Loa Volcano located on the island of Hawai‘i and will emerge above sea level in the next few thousands of years. The Big Island is the nickname for the island of Hawai‘i the youngest landmass in the Hawaiian island chain.

Though the Big Island of Hawai‘i may seem incredibly large compared to it’s predecessors in the chain, in all likelihood it is not that much larger at all (historically speaking).[148] Just across the ‘Alenuihaha Channel sits the island of Maui and it’s greatest

142 “Hawaii’s Coastline- Introduction,“ School of Ocean & Earth Science & Technology, 15 June 2005, <http://www.soest.hawaii.edu/coasts/publications/hawaiiCoastline/intro.html> (22 October 2010).
143 “Hawaii Geology & Geography,” Hawaiian Style Organization, L.L.C., 2001-2010, <http://www.hawaii-guide.com/index.php/content/posts/hawaii_geology_and_geography/> (2 November 2010).
144 “Hawaii’s Coastline- Introduction,“ School of Ocean & Earth Science & Technology, 15 June 2005, <http://www.soest.hawaii.edu/coasts/publications/hawaiiCoastline/intro.html> (22 October 2010).
145 Ibid.
146 “Hawaii Geology & Geography,” Hawaiian Style Organization, L.L.C., 2001-2010, <http://www.hawaii-guide.com/index.php/content/posts/hawaii_geology_and_geography/> (2 November 2010).
147 “Hawaii’s Coastline- Introduction,“ School of Ocean & Earth Science & Technology, 15 June 2005, <http://www.soest.hawaii.edu/coasts/publications/hawaiiCoastline/intro.html> (22 October 2010).
148 “Hawaii Geology & Geography,” Hawaiian Style Organization, L.L.C., 2001-2010, <http://www.hawaii-guide.com/index.php/content/posts/hawaii_geology_and_geography/> (2 November 2010).

volcano, Haleakala.[149] Geologists suspect that at one time Haleakala was not only joined to the West Maui Mountains, like today, but also was a single landmass combined with the islands of Lanaʻi, Molokaʻi, and Kahoʻolawe -- known as Maui Nui (literally, Big Maui).[150] The submergence of Maui Nui resulted as the volcanic body moved away from the Hawaiian hot spot. The lack of volcanic up building combined with continued subsidence into the ocean floor eventually sank portions of the large island into the Pacific, providing us with the four separate islands we see today.[151] For the next few thousand years however the Big Island will remain just that, big! It continues to represent an astounding 62% of the total land area of the Hawaiian Islands. And because Mauna Loa and Kilauea are currently still active and erupting volcanoes, the island of Hawaiʻi is still growing. The geologic future of the island is a work in progress.[152]

The third largest Hawaiian Island is the island of Oʻahu, made up from two separate shield volcanoes: Waiʻanae and Koʻolau creating a large valley "the central Oʻahu plain". Being the third largest island, close to a million people call Oʻahu home with approximately 75% of the resident population live in the City and County of Honolulu area of the island. The selected site for the design portion of this thesis is currently location-centralized part of the Honolulu, in the valley of Mānoa, which will be discussed further in Chapter 5.

4.1.2 Hawaiʻi's Sand, Sea, and Weather

The Hawaiian Island's sand is mainly a creamy white calcareous mix; derived of micro-organism, weathered coral, calcareous marine algae, and mollusk shells.[153] The black and green sand beaches on the islands are derived from eroded volcanic materials.[154] The coastal plain of most Hawaiian Islands holds major land based sand reservoirs, of variable volumes, in the zone between approximately 1 m below sea level and 2 – 3 m

149 "Hawaii Geology & Geography," Hawaiian Style Organization, L.L.C., 2001-2010, <http://www.hawaii-guide.com/index.php/content/posts/hawaii_geology_and_geography/> (2 November 2010).
150 Ibid.
151 Ibid.
152 Ibid.
153 Harney JN, Grossman EE, Richmond BM, Fletcher CH, *Age and composition of carbonate shoreface sediments Kailua Bay Oahu Hawaii. Coral Reefs*, 2000, 19:141– 154.
154 "Hawaii's Coastline- Introduction," School of Ocean & Earth Science & Technology, 15 June 2005, <http://www.soest.hawaii.edu/coasts/publications/hawaiiCoastline/intro.html> (2 November 2010).

above sea level. These sands have been radiocarbon dated in the range 1000 to 4000 yrs.[155] Our beaches and sea are popular for tanning and surfing attracting many locals and tourist.

The central pacific location of the Hawaiian Islands exposes them to wind and ocean swells from all directions. The islands' relative locations, however, may provide rain, wind, and wave shadows, that create unique exposures of coastline that are either protected from, or are vulnerable to, wind and wave impact.[156] Hawai'i is located in the tropical latitudes and northeast trade winds dominate, consistently blowing15–30 km/h, with periods of exceptionally strong and gusty winds up to 65–95 km/hr. The trade winds prevail approximately 70% of the year, with maximum intensity and consistency between April and September. Exposed south and west facing shores (258º-147º) are subject to Kona storms that dominate mainly during periods of weakened trade wind activity. Kona storms occur less than 10% of the year, generating long and moderate period waves (6-10 seconds) that are steep faced typically reaching heights of 3–4.5 m. South and southwest (210-147º) coasts are also impacted by storms of the south Pacific that are associated with southern hemisphere winter season: April through October.[157]

These trade winds play important roles in natural ventilation in Hawai'i 's architecture and personal level of comfort, thus another factor that makes Hawai'i unique to live. Trade winds that either blow down from the mountain or from offshore sea breezes, can be and should be incorporated in the design decision of a house. Designing a house that captures the direction of the trade winds and utilizing the cooling breeze will eliminate the usage of an air conditioning unit. Depending on the occupants wants, an air conditioning unit may be installed. In Chapter 5, details of this application of utilizing natural trade winds for ventilation for a house will be shown.

4.1.3 Natural Disasters in Hawai'i

Hawai'i is perceived as a place of paradise; beautiful sunny weather with white puffy cumulus clouds and cool breezes from the trade winds. However, the Hawaiian Islands are susceptible to flash floods, hurricanes, earthquakes, and tsunamis. These natural conditions are very valuable information and knowledge to be aware about and can further

155 "Hawaii's Coastline- Introduction," School of Ocean & Earth Science & Technology, 15 June 2005, <http://www.soest.hawaii.edu/coasts/publications/hawaiiCoastline/intro.html> (2 November 2010).
156 Ibid.
157 Ibid.

the design strategies to design a properly sounded house.

4.1.3.1 Flash Floods

When it rains it can pour for days and even weeks. Some parts of the Hawaiian Islands are vulnerable to flash floods. Heavy rain can turn a small quiet river into a rushing cascading river that sweeps everything away that comes into its path. Every few years, lives are lost in flash floods, mostly people swept away in their cars or hikers. In Hawai‘i, flash floods are much more common than other natural disasters, such as tsunamis or hurricanes.

In October 2004, a serious flash flood hit the island of O‘ahu in the Valley of Mānoa. The University of Hawai‘i at Mānoa campus became completely soaked and damaged the first floor of Hamilton Library. School was even closed for 2 days because of the damage the heavy rain caused. Besides destroying parts of the library, the flood trashed at least 60 homes and caused more than $1 million dollars worth in damages.[158]

In March 2006, two years later a six-week period of rain caused flooding all over the Hawaiian Islands. Literally felt like the sky was crying for forty days and nights. On the island of Kaua‘i, it caused a dam to break killing seven people. On O‘ahu, the rain caused Waikiki’s Ala Wai Canal and sewer system to overflow, resulting in a sewage spill that polluted the island’s south shore for several days.[159]

4.1.3.2 Hurricanes

Storm surge is a phenomenon caused by the extremely low pressure and strong winds around the eye of a hurricane or typhoon that cause a dome of water to form at levels higher than the surrounding ocean surface. Large swells, high surf and wind-driven waves ride atop this dome as it impacts land areas causing extensive damage to facilities and the shoreline environment. Any landmass in the path of the storm surge will be affected to a greater or lesser extent, depending upon a number of factors. The stronger the storm and the shallower the offshore waters, the higher the storm surge.

Two hurricanes (Iwa and Iniki) left devastation and death in their wake after passing

158 “Natural Disasters in Hawaii,” Kaniamea Online Publishing, LLC. 2006-2010, <http://www.to-hawaii.com/natural-disasters.php> (2 November 2010).
159 Ibid.

through the state. Hurricane Iwa hit the islands of Niihau, Kauaʻi and Oʻahu on November 23, 1982. It was a Category 1 hurricane on the Saffir-Simpson Hurricane Scale. Iwa was the first major hurricane to hit Hawaiʻi since statehood in 1959. Hurricane Iniki was the most powerful hurricane to strike Hawaiʻi in recorded history. The eye of the hurricane passed over the island of Kauai on September 11, 1992 as a category 4 hurricane causing six deaths and around $1.8 billion in damage.[160]

4.1.3.3 Earthquakes

Earthquakes in Hawaiʻi are closely linked to the islands' volcanic activity. Even though hardly noticeable, thousands of earthquakes happen every year beneath the Big Island of Hawaiʻi. The Big Island is the youngest of the Hawaiian Islands and is still growing today. Here, flowing erupting volcanoes and flowing lava can be witnessed. The island's active volcanoes are Kilauea, Mauna Loa, and Loihi. Frequent small earthquakes usually accompany eruptions and magma movements within these volcanoes. The earthquakes, also called volcanic earthquakes, originate in regions of magma storage or along paths that magma follows as it rises and moves before eruption.

Other earthquakes that can occur in Hawaiʻi are called tectonic earthquakes, which can happen in areas of structural weakness at the base of the Hawaiʻi's volcanoes or deep within the earth's crust beneath the island. In the last 150 years, a few strong tectonic earthquakes (magnitude 6 to 8) caused major damage to buildings and roads and even triggered local tsunami. The most destructive earthquake in Hawaiʻi occurred on April 2, 1868, which killed 81 people. The earthquake had a magnitude of 7.9, destroyed more than a hundred homes and generated a 15 m high tsunami along Kilauea's south coast.

The last one that happened on the Big Island of Hawaiʻi that could be felt even on the island on Oʻahu, 170 miles (274 km) to the north of the epicenter, occurred on October 15, 2006. It had a magnitude of 6.7. The earthquake caused property damage, injuries, landslides, widespread power outages and airport delays and closures. The most severe damage occurred on the north and western sides of the Big Island of Hawaiʻi. Damage was also quite heavy on the eastern side of *Maui* and minor damage spread all the

160 "Natural Disasters in Hawaii," Kaniamea Online Publishing, LLC. 2006-2010, <http://www.to-hawaii.com/natural-disasters.php> (2 November 2010).

way out to western O'ahu."[161]

4.1.3.4 Tsunamis

Hawai'i is at the greatest risk of getting hit by a tsunami. "Hawai'i records about one a year, with a damaging tsunami happening about every seven years. Early in the morning on April 1, 1946, an earthquake with a record magnitude of 7.8 occurred in the Aleutian Islands off of Alaska. Almost five hours later, at 7 a.m., the largest and most destructive tsunami waves in reported history struck Hawai'i, killing 159 people. Many were curious people, including school children, who ventured into the exposed reef area, not knowing the receding water to be a sign of an approaching tsunami. No warning was possible nor given for this tsunami. Property damage totaled approximately $26 million. Maximum run-ups were reported to be 54 feet (16.5 m) on Molokai and 55 feet (16.8 m) in Pololu Valley on the Big Island. Waves in some areas penetrated more than half a mile inland. "[162] Today, tsunami-warning systems are used to detect tsunamis in advance and issue loud siren alerts that can be heard throughout the entire island. These warnings are to prevent loss of life and damage, indicating evacuation from coastal areas and to get to high grounds.

Tsunamis are generated from earthquakes in the oceanic and coastal regions. When an earthquake occurs, the energy generated travels outward in all directions from the source making it difficult to detect a tsunami. "Tsunamis caused by undersea shifting of the earth's plate the magnitude of speed can vary; the fastest has reached 400-500 mph. In the open ocean, a tsunami is only about one foot high, so that it would pass a ship unnoticed. Once it hits shallow water, it slows down and builds up to a high, abrupt front. Tsunamis hit the land as a series of coastal waves and the largest wave is usually somewhere in the middle of the set."[163] Tsunamis are characterized as shallow-water waves. Shallow-water waves are different from the wind-generated waves many of us have observed from the beach.

In March 2010 a tsunami warning was sent out, an earthquake caused by a volcanic explosion on the Big Island. It was amazing to look out my window 24 floors

161 "Natural Disasters in Hawaii," Kaniamea Online Publishing, LLC. 2006-2010, <http://www.to-hawaii.com/natural-disasters.php> (3 November 2010).
162 Ibid.
163 Ibid.

up into the ocean and see the tide recede out to the ocean, shown in figures 27 and 28. Although it was just a warning, the State of Hawai'i was well prepared with sirens blazing into the air and clearing off of roads. There were some brave and curious locals like myself, decided to take my camera and drive along the south shore.


Figure 27 & 28: left: Kewalo Basin, the tide is receding out to the ocean, right: All boats must head out to ocean, not safe in the harbor of Kewalo Basin
Photos by Author 2010

"On March 11, 2011 an 8.9 earthquake hit Japan, the largest ever recorded and set off tsunami warnings around the Pacific Rim, including Hawai'i and California. The tsunami itself was most destructive to Japan in the area nearest to the quakes epicenter. Tsunami experts said the pattern was not unusual. With earthquakes like the one in Japan, essentially two tsunamis are generated — one that hits the nearest coastline, often within minutes, and another that can travel for thousands of miles in the opposite direction. The city of Sendai, closest to the quake was struck with suggested wave heights more than 12 feet high than normal. The footage of the tsunami covering the lands of Sendai was unbelievable and devastating. It would be a matter of time that the Hawaiian Islands would receive tsunami waving hitting its shores. Close to seven feet waves above normal reaches Hawai'i 's shores, damaging priers and marinas, and some flooding."[164]

164 Henry Fountain, "Away from Japan, tsunami's Effects is Diffuse," *The New York Times,* 2011, <http://www.nytimes.com/2011/03/12/world/asia/12tsunami.html> (1 November 2011).


Figure 29 & 30: These are still images o fthe tsunami that hit Japan and the damage it caused.
http://www.cnbc.com/id/42024887/Scenes_From_the_Japan_Earthquake_and_Tsunami
http://padresteve.files.wordpress.com/2011/03/japan-tsunami.jpg

4.1.4 Conclusion

All of the Hawaiian Islands are prone to these natural disasters flash floods, hurricanes, earthquakes, and tsunamis. Hawai'i 's location and climate plays important roles when it comes to designing a proper structure for a house or building. The architect must pay close attention to all natural environments including natural ventilation, sunlight, and topography and surrounding environment. By incorporating passive design strategies into the design of the structure this would benefit the users, like the Venturi effect. Illustrated in figure 31, the Venturi effect is when air is channeled into a constricted opening, its speed increases. According to Bernoulli's principle, if a stream of air speeds up, its pressure drops. These principles can either speed up the airflows and/or generate suction. For example, when wind blows towards an open window, some of the air stream enters the opening. If the window is small, the Venturi effect means the air will force through under some pressure and so speed up. On the other hand, if the window is large, the pressure of the air flowing through it will drop, lessening its speed.[165]

165 "Ventilation Solar- Moving air: the basics," Lighting Canyon: 2008, <http://www.lightningcanyon.com/pages/passive-solar/ventilation.html> (1 November 2011).

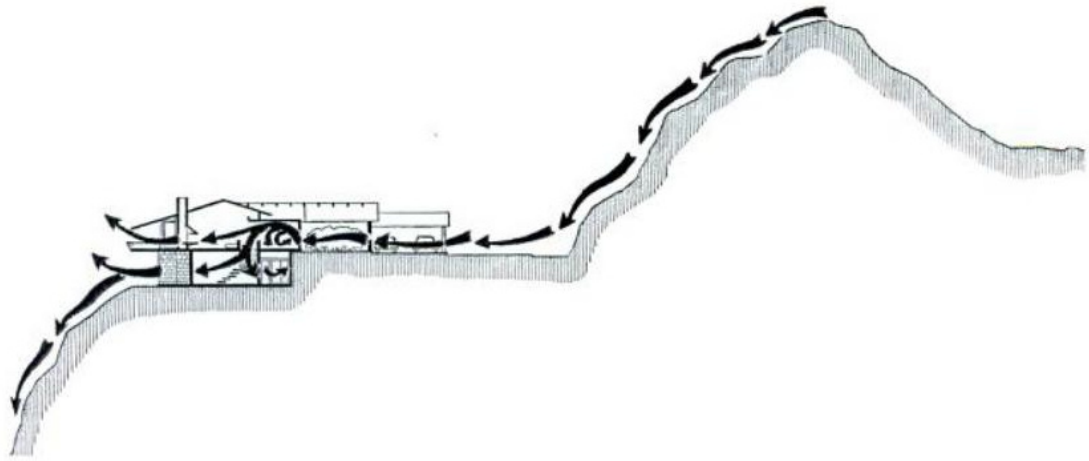


Figure 31: A diagram of the Venturi Principle of air movement throughout the Liljestrand house. Sakamoto et al. 2007

Architects must also keep in mind the possible natural disasters that can occur to the Hawaiian Islands at any giving moment. As architects ought to take into account the location of the site and how it can be design to with stands Hawai'i 's natural disasters. The location of the site provides given parameters, for example, if a site is a beachfront property then a certain set back is required from the beach and the structure must be elevated for potential flooding situations. This may also be applied to plots of lands that are near or abut a flowing stream. Paying attention to these factors affects the integrity of the structure and should be addresses, along with aesthetics. Integrating these natural factors within the schematic design phase is curial and would be at its true test when one of these natural disasters occurs

4.2 The Rich History of Hawai'i

Without a written language, the Hawaiians kept their records through oral history composed of chants, hula, epic stories of gods, kings, and migrations. Over the centuries, oral historical specific facts are subject to be diluted, questionable, and clouded through the changing language over time. Hawai'i's early inhabitants journeyed throughout the vast Pacific guided by stars, the rising sun, clouds, birds, and sea currents.

4.2.1 Settlement and Pre-contact Hawai‘i

Hawaiian settlers were Polynesians who traveled to Hawai‘i using double-hulled canoes and navigated their way with the stars. They filled their canoes with animals (pigs, dogs, chickens), taro, sweet potatoes, coconuts, bananas, and sugarcane.[166] These added to Hawai‘i’s ecology that had developed over millennia in environmental isolation. Natural organism existed in a closely interdependent network and developed little resistance to outside threats.[167]

“Early life in Hawai‘i was mostly good. The climate was favorable and predictable, the land fertile and the sea bountiful. The Hawaiians were very much aware of the finite resources of their island environment and became excellent stewards of nature. They named and classified each creature, and divided the land into pie-shaped segments called *Ahupua‘a*. Usually an *ahupua‘a* stretched from a mountain summit, down through fertile valleys, and to the outer edge of the reef in the sea which provided the families living on the land access to every elevations for the cultivation of various crops, plus fishing and gathering rights in the ocean.”[168]

Hawai‘i’s society was composed of the *ali‘i* (ruling class), the *kahuna* (priests or experts), the *maka‘aina* (commoners), and the *kauwa* (slaves).[169] Social status was determined at birth, by heredity. The society was highly rigid and regimented under a strict *kapu* (translated it means “forbidden”) system, which dictated daily activity between and among the classes, between the people and the gods, and between the people and nature.[170]

4.2.2 Hawaiians Belief System and Relationship with the *‘Aina*

In the eyes of the Hawaiians, humans and nature were instantly related to all things reflected in the presence of gods. The origin of man and the islands were integrated together, including all landforms, plants, animals, and human expression as individuals in a

166 Michelle Renee, Dudoit, *Cultural Identity and Cultural Practices of Hawaiian & Part Hawaiians in Southern Califorina and Hawaii* (Ann Arbor, Michigan: UMI Dissertation Services, 1997), p. 19
167 Ibid., p. 20
168 Rita Ariyoshi, *National Geographic Traveler Hawaii*, (Washington, D.C.: National Geographic, 2009), p. 26-27
169 Dudoit, *Cultural Identity and Cultural Practices of Hawaiian & Part Hawaiians in Southern Califorina and Hawaii*, p. 19
170 Ibid., p. 20

larger family of life and creation.

Mana, meaning spiritual energy, permeates in every aspect of the Hawaiian world. *Mana* is basically, everything including every human, rock, spring, bird, flower or god expresses the essence of that being, in other words, very similar concepts to Chinese *qi,* described earlier. In humans, evidence of *mana* - inborn or acquired - might take the form of intelligence, skill, prestige, or leadership ability. Through prayer and intention, the *mana* of things, places or gods could be increased and nurtured.[171] The Hawaiian believe in the supernatural powers of the natural world in their worship of the *akua* (gods) and *'aumakua* (ancestors).[172]

There are numerous *akua* for everything in existence, but there are five main significant *akua*; Kane, Lono, Ku, Pele, and Kanaloa. *Kane* is considered the father of all living things and identified with sunlight and freshwater the sources of all life.[173] "Lono is the god of harvest, and brings on the rains and dispenses fertility. Ku literal translation means "rising upright", and is seen as a universal character as a god of worship. The Hawaiians worshipped Ku for things such as good fishing, long life, good crops, and family and national prosperity for a whole. Pele is the Hawaiian goddess of volcanic fire, personification of the female power of destruction. And last but not least Kanaloa, in old Polynesian sea god of death, darkness, water, and squid. Kanaloa, is associated with the Christian devil."[174]

"The worship of *'aumakua*, or ancestral figures, linked the current generation to generations past, continuing back to the very origins of the world. Depending on the family's *'aumakua*, they can either represent forms of an animal, such as, a shark, turtle, and a dog. In this way, Hawaiians wove their individual stories into the larger fabric of the culture. The stories of Hawaiian gods and *'aumakua* contain infinite variety but all reflect the core values of the society: respect for the land, sea, waters and one another, care and stewardship of plants and animals, and striving for balance, structure and unity."[175]

171 "Cosmology," Info Grafik Inc, 2010, <http://www.hawaiihistory.org/index.cfm?fuseaction=ig.page&CategoryID=276> (2 November 2010).

172 Ibid.

173 E.S. Craghill Handy. "Religion and Education." Ancient Hawaiian Civilization. (Honolulu: The Kamehameha School Press, 1993), p. 46

174 "Hawaiian Gods," Untangle Incorporated,1995-2009, <http://www.mythome.org/hawaiig.html> (5 December 2010).

175 "Cosmology," Info Grafik Inc, 2010, <http://www.hawaiihistory.org/index.cfm?fuseaction=ig.page&CategoryID=276> (2 November 2010).

The Hawaiians' relationship with the *'aina* (land) was very close. Basically, the Hawaiian people realized and believed in the power of nature, and felt the need to preserve and take care of the land, which in return takes care of them. The land provided them food, medicine, houses, clothing, leis, soaps, dyes, plants that could provide ways of creating a light source, and a way of life.[176] The Hawaiians were very resourceful and inventive people to create a life-style out from nature. It also shows their high dependence on plant life and how extremely important the relationship with the land was to the traditional Hawaiian culture.

Their relationship with nature and land is also translated into their personal life and ancestral ties. According to Pukui, Hawaiian legend tells that the first human was a child of a god and a taro plant,[177] expressing themselves of direct offspring of the land.

The Hawaiian lived sustainably through a self-sustain geological system of dividing the land into wedge-shaped areas. These wedge-shaped landmasses are called *ahupua'a*, which stretched from the *mauka* (mountains) to *makai* (ocean), which provided all the resources that the community needs to sustain their livelihood.

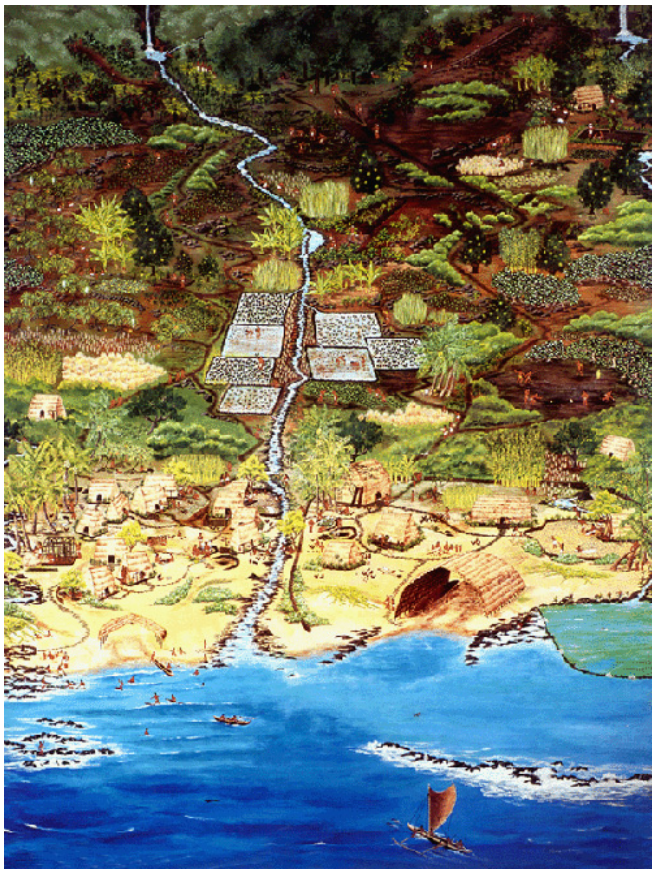


Figure 32: *Ahupua'a* of the early Hawai'i
http://drpermacultureinstitute.com/wp-content/uploads/2010/09ahupuaa-life-in-early-hawaii.jpg

176 Albert F. Judd, T*rees and Plants* (Honolulu: The Kamehameha Schools Press, 1993), p. 273
177 Mary Kawena Pukui et al., *Nana I Ke Kumu* (Honolulu: Queen Liliuokalani Children's Center, 1972)

> "Within the *ahupua'a*, *'ili* were smaller divisions (two or three per *ahupua'a*) that constituted the estate of the chief. Each *'ili* could be formed of noncontiguous pieces called *lele*, or jumps. *Mo'o* were sections of the *'ili* that were arable; usually these agricultural units did not extend to the sea. Smaller yet were the *kuleana*, or land tracts used by the common people for cultivation of crops. The size of *kuleana*, like the size of *ahupua'a*, depended on the natural fertility and abundance of the land."[178]

The *ahupua'a* was rich in resources and nourishment. Villagers who lived in the mountains and inland had fertile land, which they used for farming *kalo* (taro - Hawaiian sweet potato). Those who lived near the ocean were fishermen and fished and cultivated seafood. Farmers who grew *kalo* would trade with the fishermen for fish, also for tools and other goods. They each specialized in their crafts and relied on each other, everyone's role was important to a well-balance harmonious community.

These communities were able to maintain a sustainable lifestyle through sharing resources and constantly working within their natural environment. Throughout the harvest season, the Hawaiians enjoyed their leisure time by creating many arts and crafts or engaging in competitive sports and martial arts. Another form of art that Hawaii's culture is popularized for is the art of Hula, which is an expression of dance and chant.[179]

4.2.2.1 Hawaiian Vernacular Architecture: *Heiau*, Thatched House and Roof Forms

Hawai'i's Architecture, both in design and function, is an expression of Hawai'i's tropical climate, natural beauty and multi-cultural character, which allows a creative and innovative playing field for architects practicing in Hawai'i. Architecture, the structural vernacular that surrounds us, speaks of a sense of place, revealing history and reflecting social and political changes. Throughout the historical changes of *Hawai'i* so did the architecture, from *pili* grass thatched huts to skyscrapers.

178 "Ahupua'a," Info Grafik Inc, 2010, <http://www.hawaiihistory.org/index.cfm?fuseaction=ig.page&CategoryID=276> (2 November 2010).
179 Ibid.

Through westernization, archeologists and ethno-historians of the late-19th and early 20th centuries have identified and described the functions of *heiau*- temple or places of Native Hawaiian religious worship. Still today, *heiaus* remain highly valued among the Hawaiian people who strive to perpetuate Hawaiian spiritual values and practice.

Heiaus are diverse in sizes, shapes, environmental setting and in functions. A common notion of *heiau* that they comprise a set of human-built structures that are made up of one or more of these elements:

- rectilinear terraces;
- rectilinear enclosures;
- rectilinear platforms;
- rock mounds; or
- upright stones.[180]

Figure 33: A rectilinear terraces *heiau*
http://pics4.city-data.com/cpicc/cfiles51653.jpg

> "Each *heiau's* form and layout was different from each other and no two were the same. *Heiau* is a type of sacred place in Hawaiian culture, which were built as a place of worship, offering, and sacrifice to the *akua*. These sacred places are considered to be the most enduring and significant architectural forms form Hawaiian culture previous to western contact. The spiritual use of any *heiau* also varied, in purposes of healing, war and human sacrifice, husbandry, fishing, agriculture, and to promote rainfall, to name but a few."[181]

"Ancient Hawaiians lived their lives mostly outdoors, pursuing everyday activities in the midst of warm sunshine and gentle breezes. House structures and other buildings were used primarily for storage or as protection against rough weather. Commoners generally had a single house while chiefs had a complex of separate houses used for different purposes. The grass house, or *hale*, followed the basic construction pattern

180 C.K. Haunani Cachola-Abad, *The Significance of Heiau Diversity in Site Evaluations* (Cultural Resource Management, 1996), p. 11
181 Ibid., p. 14

common throughout Polynesia. The wooden framework consisted of ridegpole, rafters, and purlins or horizontal supports running between vertical wall posts. Thatching material - most commonly *pili* grass - was tied to the purlins in bundles with thatch at the ridgepoles carefully layered and braided to prevent rain and wind from entering the house. Other thatching materials included various grasses, pandanus leaves, ti, sugarcane leaves and banana trunk fiber. Lashing was done with braided *'uki'uki* grass, coconut husk fiber or *'ie'ie*; no nails were used. Hale typically had a small door opening and no windows."[182]

Hawaiian architects - members of the *kahuna* class (those in the *kahuna* class were professional experts whether it was in hula, chant, medicine, navigation (sailing), building, etc.) with special building knowledge - were called *poe kuhikuhi pu'uone*.[183] It is believed they designed fishponds, irrigation systems, *heiau* and other significant structures. A chief often sponsored these large projects and construction involved the whole community.[184] The *kahuna*'s knowledge was passed down to the next generation through oral communication and observation.

Knowledgeable information specifically about Hawaiian geomancy was difficult to find. Kahu Abraham Kawai'i, a native born Hawaiian *Kahuna* of the Order of *Olohe*, an adept of innate perceptive ability[185] felt that the wealth inherent in Hawaiian culture could be taught outside of its cultural framework, and formulated strategies to teach the principles at work rather than anything specifically Hawaiian.[186] Kawai'i founded *Na* Pua *'Olohe* (The Flowers of Wisdom) an organized *kahuna* personal transformation and training organization that provides workshops and seminar instruction in ancient Hawaiian *kahuna* principles.[187] According Kawai'i, Hawaiian geomancy is the knowledge of how the land, the elements, and the placement of natural and man-made structures affect one another and the flow of natural energies.[188] There are two concepts of Hawaiian geomancy, *Huli honua* and *Kuhikuhipueoneone*. *Huli honua* is the study of how man-made objects interact

182 "Architecture," Info Grafik Inc, 2010, <http://www.hawaiihistory.org/index.cfm?fuseaction=ig.page&CategoryID=276> (2 November 2010).
183 Ibid.
184 Ibid.
185 Ki'a'i Ho'okahi, "The Kahuna," Kahuna Source, 2011 <http://www.kahunasource.com/essence3.html> (4 November 2011).
186 "Kahu Abraham Kawai'i," Na Pua ʻOlohe, <http://www.napuaolohe.com/kahu-abraham-kawaii/> (4 November 2011).
187 "About Us," Na Pua ʻOlohe, <http://www.napuaolohe.com/about-us/> (4 November 2011).
188 "Workshops," Na Pua ʻOlohe, <http://www.napuaolohe.com/workshops/> (4 November 2011).

with natural energies within the design and placement of a space.[189] *Kuhikuhipueoneone* creates and selects placement and formulates presence in nature, one's self, and one's family.[190]

While the Hawaiian houses differed in use, size and complexity they were structurally similar. Different roof forms evolved, external shape distinguishes gable from hipped-roof thatched houses. The shape reflects the kinds of frame concealed by the thatch. Hipped- roofs were presented in Hawai'i by 1800, at the time when some Westerners were known to have been in residence.[191] It is concluded that the gable roof is the pre-contact style of the Hawaiian thatched house for chiefs, temples and commoners. It should be noted that there are disadvantages to a hipped-roof house, whose ridge is too low to permit standing. A hipped frame reduced the amount of usable space. The hipped style of the Hawaiian thatched house, represents the transition to Western ways, is perpetuated by the "Hawaiian Grass House" on exhibit in the Bishop Museum. [192]

There are 4 basic Roof forms

1. Roofs with straight rafters on ground
2. Roofs with curved rafters on ground
3. Roofs with straight rafters elevated on walls
4. Roofs with curved rafters elevated on walls[193]

These four roof forms used in Hawaiian architecture has a connection to Hawaiian geomancy and relates to the type of roof forms in *fengshui*. Based on the shape of the roof, a particular roof from is assigned to a type of element such as, wood, water, fire, metal, and earth. Depending on the shape, the roof would indicate whether it is suitable positive or negative *fengshui* connotation. I will further dicuss this in Chapter 5, the design portion.

Decades after Western contact, grass *hale* were built and used. In 1816, traditional grass *hale* was still prevalent, though adobe and coral blockhouses were also being built

189 "Workshops," Na Pua ʻOlohe, <http://www.napuaolohe.com/workshops/> (4 November 2011).
190 Kiʻaʻi Hoʻokahi, "Modern Training," Kahuna Source, 2011 <http://www.kahunasource.com/training_modern.html> (4 November 2011).
191 Russell A. Apple, *Hawaiian thatched house; use--construction--adaptation*, (San Francisco: Office of History and Historic Architecture, Western Service Center, 1971), p. 40
192 Ibid., p. 42
193 Ibid., p. 48

near Honolulu harbor. By 1837, *pili* grass and local woods were still the main materials, but buildings began to incorporate Western design elements such as windows, high ceilings and large portal entrances. New materials also began to be used. In 1795, John Young and Isaac Davis built the first Western-style masonry buildings in Kailua-Kona. Three years later, a brick palace was built at Lahaina.[194]

4.2.3 Discovery (Putting Hawai'i on the Map)

> Either on January 18th or 20th 1778, some fisherman at Waimea, Kaua'i saw two large and very strange silhouettes moving across the dark ocean, carrying lights. By dawn, a larger crowd had gathered along the shore to see two huge ships anchor. Captain James Cook, in command of H.M.S. Resolution and H.M.S. Discovery, en route from the South Pacific, discovered the Northwest Passage between Alaska and Asia and had stumbled upon the Hawaiian Islands so far north in the Pacific, breaking centuries of isolation for the Hawaiian people. Captain Cook put the islands that he called the "Sandwich Islands" on his maps, named after the Earl of Sandwich.[195]

"During the two weeks Captain Cook and his men spent there, they inadvertently introduced European diseases to which native people had no immunity. In addition to diseases, they brought, hard liquor, tobacco, material goods, weapons of war, and grazing animals."[196] As a result, these new features caused a disaster and the native people had no built-up resistance and were left virtually defenseless to diseases.

> Vast oceanic distances among the Pacific island groups had effectively prevented the spread of bacterial or viral illnesses anywhere in Polynesia. In addition, syphilis and gonorrhea, epidemics of tuberculosis, cholera, smallpox, measles, influenza, and bubonic plague heightened the rate of Native Hawaiian depopulation. In the 100 years following first Western contact in 1778, the Native Hawaiian population dropped from an estimated 1,000,000 down to 40,000, a reduction of at least 95%.[197]

194 "Architecture," Info Grafik Inc, 2010, <http://www.hawaiihistory.org/index.cfm?fuseaction=ig.page&CategoryID=276> (2 November 2010).
195 Ariyoshi, *National Geographic Traveler Hawaii*, p. 29
196 Ibid.
197 Dudoit, *Cultural Identity and Cultural Practices of Hawaiian & Part Hawaiians in Southern Califorina and Hawaii*, p. 20

4.2.4 The Rise of the Kamehameha Dynasty

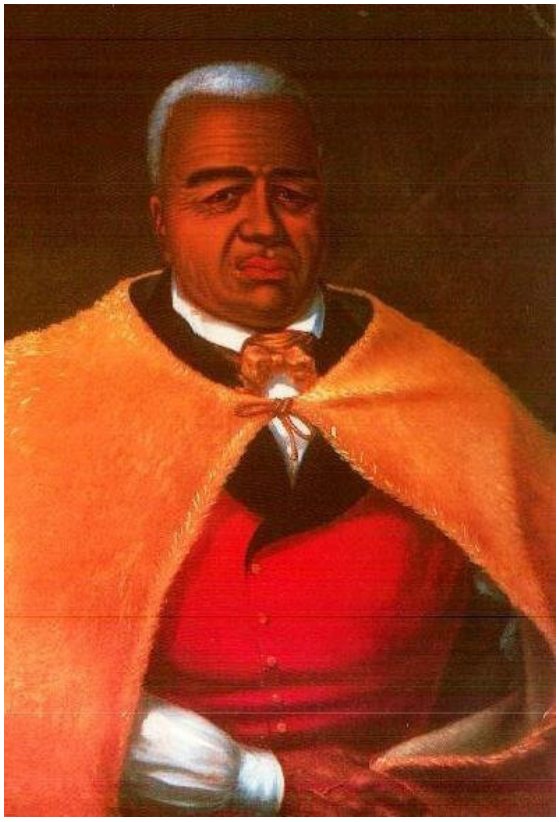


Figure 34: King Kamehameha the Great
http://en.wikipedia.org/wiki/Kamehameha_I

On the night in 1758, when Halley's comet streaked across the Hawaiian Sky, Chiefess Kekuiapoiwa gave birth at the scared stones of kohala, near Mookini Heiau, Big Island (noble women customarily gave birth on special rocks in sacred places). Because of the omen in the sky, a prophet predicted the child would become "a killer of chiefs and ruler of all the islands." Accordingly, the ruling chiefs ordered him killed. Loyal retainers hid the infant in Waipio Valley, where he was raised in secret and schooled in the arts of warfare and statesmanship. His name was Kamehameha. A brilliant strategist and courageous warrior, he was to launch a campaign of conquest that eventually united all the islands into one nation. Kaua'i alone was not conquered, but voluntarily joined the union. As was customary, Kamehameha had many wives. Keopuolani (1778-1823) was his Sacred Wife, the one through whom the kingship passed. But Ka'ahumanu (1772-1832) was his favorite wife, whom he likened to a *lehua* blossom. Kamehameha I proved as wise in peace as he was ferocious in war. He was also known as Kamehameha the Great.[198]

Kamehameha I did not begin his rule until 1782. He extended his rule to all of the major islands of the Hawaiian chain except Kaua'i. During his reign, he demonstrated his organizational genius and adapted a traditional system of government to changing conditions and devised a successfully implemented new political institution, which

198 Ariyoshi, *National Geographic Traveler Hawaii*, p. 29

enabled him to govern Native Hawaiians and foreigners with impartial justice.[199]

Upon Kamehameha I's death in 1819, Kamehameha II or Liholiho succeeded his father to the throne. In May 1819, under the pressure from his stepmother, Queen Ka'ahumanu, he was responsible for abolishing the *kapu* system that had ruled life over the Hawaiian Islands. Kamehemeha II visited the ruling chief of Kaua'i and through negotiation bound Kaua'i firmly to the rest of the kingdom.[200] At this time, missionaries of Presbyterian religion came to Hawai'i and settled in major ports of Honolulu and Lahaina. They not only brought their religion but also the first frame house in Hawaii styled from the congregational meetinghouses and farmhouses vernacular buildings from New England. These houses had high-pitched roofs and overlapping weatherboards called clapboards. This New-England style morphed into a distinctive style called Hawaiian mission architecture.[201]

Kamehameha III or Kauikeaouli was the second son of Kamehameha I and was only 11 when he officially succeeded Liholiho. He gave his people a constitutional monarchy during his reign and civil and land laws which endeavored to insure the sovereignty of the kingdom. This paved the way for recognition of the Hawaiian Kingdom as a sovereign nation by the world powers. Alexander Liholiho Keawenui 'Iolani or Kamehameha IV and Kamehameha V or Lot Kamehameha was next. William Charles Lunalilo was the sixth and last King of the Hawaiian monarchy.[202] As Kamehameha IV assumed the throne, Neo-Gothic architecture was on its way of making a statement in Hawai'i's architecture. Elaborate details to the facades of cathedrals were very costly, an example is St. Andrew's cathedral.[203]

Soon after King Kamehameha IV passed King David La'amea Kalakaua, Kamehameha V was the first and only king to accent to the throne by election.[204] During

199 Dudoit, *Cultural Identity and Cultural Practices of Hawaiian & Part Hawaiians in Southern Califorina and Hawaii*, p. 21
200 Ibid., p. 22
201 "Hawaiian Architecture," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Hawaiian_architecture> (30 October 2011).
202 Dudoit, *Cultural Identity and Cultural Practices of Hawaiian & Part Hawaiians in Southern Califorina and Hawaii*, p. 22
203 "Hawaiian Architecture," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Hawaiian_architecture> (30 October 2011).
204 Dudoit, *Cultural Identity and Cultural Practices of Hawaiian & Part Hawaiians in Southern Califorina and Hawaii*, p. 22

King Kalakaua's reign a palace building names Hale Ali'i meaning House of the Chiefs was then changed to 'Iolani Palace in honor of his brother Kamehameha IV. King Kalakaua envisioned the royal palace befitting of the sovereignty of a modern state, and commissioned construction of 'Iolani Palace the official palace of the Hawaiian monarchy. In November 1882 the palace was completely built, Thomas J. Baker designed the structure, Charles J. Wall added details, and supervised by architect Isaac Moore. This palace was like no other, its unique style was known as American Florentine.[205] This is where the official residence of the Hawaiian monarch resided until Kalakaua's sister, Lili'uokalani succeeded to the thrown upon his death. Upon her succession, the economy was seriously affected by the William McKinley tariff, which wiped out the advantages of the reciprocity treaty.[206]

4.2.5 Annexation to the United States

By the 1840s, sugar cane plantations gained a strong grip in Hawaiian agriculture and gained momentum in the progress of expanding business. Some diversified to dominate related industries including transportation, banking and real estate. Economic and political power was concentrated in what were known as the "Big Five" corporations: C. Brewer & Co., Theo H. Davies & Co., Amfac, Castle & Cooke, and Alexander & Baldwin.

> The first indentured workers came from China in 1852. They had five-year contacts offering free passage, food, clothing, housing, and wages of $3 a month. By the time the Chinese government prohibited immigration to Hawai'i in 1881, due to reports of abuse, Hawai'i had a population of 18,000 Chinese. Between 1878 and 1887, 17 ships brought 12,000 Portuguese workers and families from Madeira and the Azores. Workers in smaller numbers were recruited from Scandinavia, Germany, Russia, and Puerto Rico. King David Kalakaua (1836-1891) went to Japan to negotiate labor agreements. Japanese workers were offered three-year contracts providing for free steerage passage, a food allowance, lodging, medical care, fuel, taxes, rice at nor more than five cents a

205 "Iolani Palace," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Iolani_Palace> (30 October 2011).

206 Dudoit, *Cultural Identity and Cultural Practices of Hawaiian & Part Hawaiians in Southern Califorina and Hawaii*, p. 23

pound, and wages of $9.00 a month for men and $6.00 for women.[207]

By 1892, Hawai'i's was a vibrant, multi-racial, multi-cultural nation engaged in intellectual and economic commerce with the world. In March 1897, William McKinley succeeded Grover Cleveland as president of the United State of America. He agreed to a treaty of annexation, but it failed in the Senate because petitions from the islands indicated lack of popular support. A joint resolution was written by Congressman Francis G. Newlands to annex Hawai'i. McKinley signed the Newlands Resolution, which officially annexed Hawai'i on July 7, 1898 to become the Territory of Hawai'i.[208]

Figure 35: To the right of this picture is the building my Great Grandparents on my mother's side ran a grocery store in the 1920's, in Pa'ia, Maui. The family house also in Plantation style was behind this building. Today it is still standing. Photo by Dang relative, provided by Timothy Leong

By 1900, they Japanese constituted 40% of the population, the largest ethnic group in the islands. Seeking cheap labor, the plantation owners in 1906 turned to the Philippines. In the 1970s, Filipinos were the largest group immigrating to Hawai'i. Later immigrants have come from Korea, Southeast Asia, and other Pacific islands. In all approximately 385,000 workers from around the world were brought to Hawai'i to feed the plantations.[209]

207 Ariyoshi, *National Geographic Traveler Hawaii*, p. 33
208 "History of Hawaii," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/History_of_Hawaii> (14 November 2010).
209 Ariyoshi, *National Geographic Traveler Hawaii*, p. 33

Figure 36: In 2008, I am standing in front of the building my great grandparents used to own in Paʻia, Maui.
Photo by Author, 2008

Hawaiʻi became a melting pot of many cultures and ethnicities have expanded in cuisine, language (Hawaiian Pidgin- a hybrid language primarily of Hawaiian, English, Japanese, Chinese, and Portuguese. This allowed plantation workers to communicate effectively with each other), marriages, and also in architecture.

As the population increased, residential homes were being built in the outskirts of the city of Honolulu and elsewhere in the state. Because of different laborers ethnic cultures, they brought a piece from their homeland and implemented their personal traits to help comfort their new transitional lives in Hawaiʻi. This influenced a particular style of houses called Hawaiian plantation architecture. Houses featured low profile wood frames, vertical plank siding and large porticos, roofs were wide-hipped or bell cast and eaves that were deep bracketed.[210] Hawaiʻi located in a tropical/subtropical climate, influenced Hawaiian architecture. Because of the cooling tradewinds, architectural features included large openings (windows), wide eaves, open *lanai* (porch), and double pitched hipped roofs. Also Asian culutures infulenced Hawaiian architecture through asian design motifs and the relationship and connecting indoor and outdoor spaces.

210 "Hawaiian Architecture," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Hawaiian_architecture> (30 October 2011).

4.2.6 World War II and Statehood

WAR! Screamed the headlines of the *Honolulu Star Bulletin*, in an extra edition. President Franklin D. Roosevelt declared war on the Empire of Japan, because of the attack on Pearl Harbor calling December 7, 1941, "a date which will live in infamy." The attack came in four waves, beginning at 7:55 in the morning 306 Japanese aircraft, launched from carriers, devastated the U.S. Pacific Fleet anchored in Pearl Harbor and left behind 2,323 Americans dead, including civilian casualties.[211] Most Americans had never heard of Pearl Harbor, even though the US Navy utilized Pearl Harbor since the Spanish-American War in 1898.[212]

Following the World War II, a push to make Hawai'i a part of the United States of America was essential. Eventually, President Dwight D. Eisenhower signed Hawai'i *Admission Act* on March 18, 1959 that allowed for Hawaiian statehood. "After a vote of over 93% in favor of statehood, Hawai'i was admitted as the 50th state on August 21, 1959, with a population of about 423,620 (85%) Americans and foreigners and 76,620 (15%) Native Hawaiians."[213] The United States placed the following question to the "qualified" voters of Hawai'i. "Qualified" voters were Americans who had been residents of Hawai'i for at least one year.[214]

Honolulu became the State Capitol of Hawai'i, and needed an architectural representative. The Hawai'i State Capitol, official statehouse or capitol building of Hawai'i is an iconic piece of architecture that is considered an example of Hawaiian international style of architecture. This style was developed in the 1920s and became popularized in the 1960's throughout the world and also became a trend for downtown Honolulu office buildings. The principles of International style were simple forms without the usage of ornamentation, dull colors (white, gray, beige and black), and embraced open floor plan. The Hawai'i State Capitol stuck true to the principles of modernism, using simple clean lines and geometric shapes, hues of black and gray concrete, and an open structure. On

211 Ariyoshi, *National Geographic Traveler Hawaii*, p. 36

212 "Spanish-American War," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/Spanish–American_War> (20 November 2011).

213 "History of Hawaii," Wikimedia Foundation, Inc., <http://en.wikipedia.org/wiki/History_of_Hawaii> (14 November 2010).

214 Dudoit, *Cultural Identity and Cultural Practices of Hawaiian & Part Hawaiians in Southern Califorina and Hawaii*, p. 34

the other hand, Hawaiian international architecture also incorporated indigenous *koa* wood for doors and furnishings, symbolism of natural Hawaiian phenomena, and other regional features. The central space has no roof, but is open to the sky above allowing all natural elements to enter, and also reflects the volcanic creation of the Hawaiian Islands. The two cone-shaped structures are the legislative chambers, which symbolize the volcanoes that formed the Hawaiian Islands. Surrounding the perimeter of the building on each side are eight columns shaped like coconut trees, that represent the eight main Hawaiian Islands. The State Capital at ground level is surrounded by a pool of water, thus indicating the Hawaiian Islands being surrounded by the vast Pacific Ocean.

4.2.7 Conclusion

The progress of the Hawaiian Islands starting from spilling lava rising up through the ocean floor, a native race of the Hawaiian people, a ruling monarchy, growing population putting Hawai‘i on the map and becoming the 50th state of the United States of America, to where Hawai‘i is today in the 21st century. The Hawaiian Islands have dramatically changed throughout the centuries. The Hawaiian history was told through chants, hula, and stories but eventually the oral communication became a written language by non-natives who settled in Hawai‘i influencing their culture and insisted a written language. Not only did their language become a written format, but also their way of living, religion, politic, and architecture to name a few.

The Hawaiian architecture of *hales* changed through influences of non-natives who would have their own architecture style built on Hawai‘i soil. Because of the awareness of the Hawaiian Island in the middle of the Pacific Ocean, many settlers from all over the world wanted a piece of this found jewel. They saw great opportunities and profitable ones as well. This then led to production of the sugar cane plantation and immigration from Asia. After the bombing of Pearl Harbor in 1941, Hawai‘i became a part of the United States on August 21, 1959. The multiethnic and multi-cultural impact turned Hawai‘i to what it is today, “the melting pot” of the world.

4.3 Hawaiian Modern: The Liljestrand House

On the morning of November 8th, I drove down a private narrow path to the Liljestrand house. The Liljestrand house is located upon the winding roads and forest-like of Makiki Heights, 3300 Tantalus Drive. Architect Vladimir Ossipoff designed this home for Howard and Betty Liljestrand.

Figure 37: The Liljestrand house in Makiki Heights nestled in the lush hillside. Photo by Author, 2010

4.3.1 The Liljestrand Family

Howard Liljestrand was raised in China, and then moved to the United States for his medical studies. Howard then met his wife Betty and tried to make the trip back home to China in 1937. However there was an outbreak of the Second-Sino Japanese War earlier that year, and they made a pause in Hawai‘i. Howard, a doctor, and Betty, a nurse, found employment at The Queen’s Medical Center. Eventually they settled in Hawai‘i making it their home to build a house and raise a family.[215]

On a beautiful day in Hawai‘i, Howard and Betty roamed the wooden ridge of Tantalus. Tantalus was still sparsely settled forest reserve land, lacking in city water lines, and the a few lots were available and inexpensive. On their hike they found the owner of the land sitting on a flat area watching the sunrise over Diamond Head and over the city of Honolulu. The site on a hillside overlooked over the south shores of Honolulu, views stretching from Diamond Head to Pearl Harbor and beyond. Howard fell in love with the land and later bought the lot from the owner of the land. The year of 1946 opened

215 Bob Liljestrand, (Son of Howard and Betty Liljestrand), interview by Noryn Lau, The Liljestrand House November 8, 2010 .

many possibilities for the Liljestrand, as they found a perfect site for their new home, close proximities to work, school, and town. Mr. Coulter, the owner of the lot, sold them the parcel of land for $2000, even though the Liljestrand offered twice the amount. They then were in search of an Architect.[216]

4.3.2 Vladimir Ossipoff, the Architect

Figure 38: Portrait of Vladimir Ossipoff
http://bruteforcecollaborative.files.wordpress.com/2010/03/ossipoff-portrait.jpg

Vladimir Ossipoff was born in Vladivostok, Russia on November 25, 1907. He lived and grew up in Tokyo, Japan, where his father was a military attaché of the Russian embassy. Vladimir's father then moved the family to San Francisco, California, United States in 1923 because of the numerous earthquakes Japan would receive, with regrets this father died and couldn't meet with his family.

In 1931, Vladimir attended the University of California, Berkeley and studied architecture. His roommate being from Hawai'i mentioned that there was work available. After graduating, Ossipoff moved to Hawai'i. In 1936, he started his own practice. Ossipoff was elected a Fellow of the American Institute of Architects in 1956, and he was awarded the first medal of honor of the AIA Hawaii chapter. Ossipoff is considered the Hawaiian regional modernist and was known for a style of architecture that mixed Japanese and modern elements. His modernist designs provided elegant solutions for commercial and residential architecture in a tropical environment cooled by temperate trade winds, which his buildings rarely needed air-conditioning.[217]

216 Bob Liljestrand, (Son of Howard and Betty Liljestrand), interview by Noryn Lau, The Liljestrand House November 8, 2010 .

217 Dean Sakamoto, and Karla Britton, *Hawaiian Modern: the architecture of Vladimir Ossipoff*, (Honolulu: Honolulu Academy of Arts, 2007), vii.

4.3.3 Layout and Construction

The Liljestrands finally found their architect, Vladimir Ossipoff in 1947 a year after finding their dream site. The design and building progress took three years from begging to end. The Liljestrands presented Ossipoff a list of demanding requirements and the topography of the land was highly variable to daily weather conditions of sun, wind, and rain. The house is built on two terraces; port caroche, entrance, narrow long main part of the house on the uphill terraces, and the lower floor opening onto the downhill terrace. The third lower tier is where the swimming pool is located.

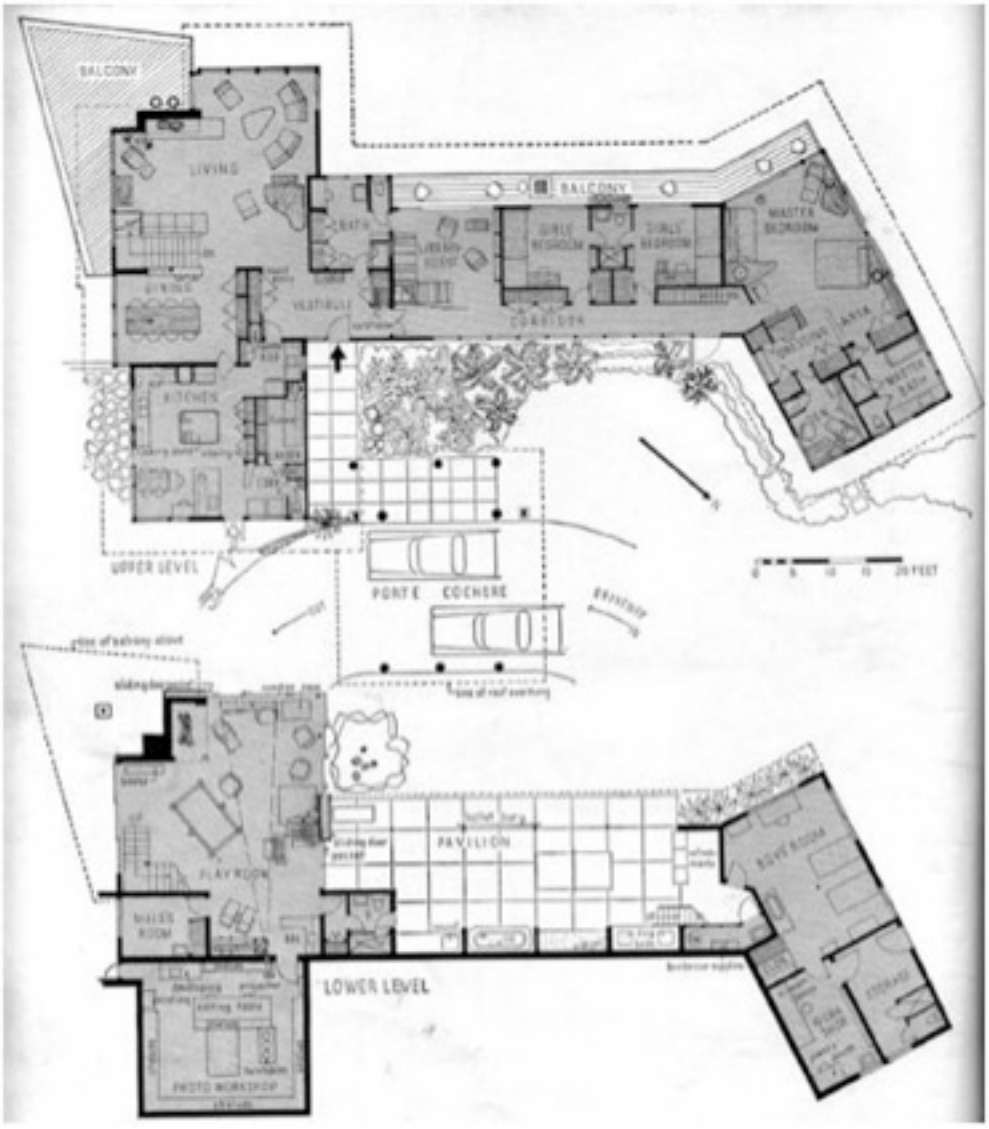


Figure 39: Floor plans of the Liljestrand house. Image provided by Bob Liljestrand

Figure 40: The entrance of the house from the porte cochere, lead you into a dark and compressed space. Photo by Author, 2011

Ossipoff's designs were highly influenced by Japanese culture from his up bringing in Japan. In figure 40, the entrance of the house was referred to a porch (*genkan*) – dark, compressed, and dramatic. The house is well sheltered from frequent mountain showers, while low-lying wooden louvers draw cooling breezes toward the larger opening on the side facing the downhill. The living room is open and introduces you to the spectacular view of Honolulu. Along the longer narrow part of the house, the hallway is aligned with several rooms, each room with a view. The master bedroom was located at the end of the hallway and is the only room that was designed angular. The house also has a wraparound *lanai*/ deck that jests out from the living room to the master bedroom, and overlooks the pool.

The house was constructed with simple materials; wood (Redwood, *Ohia*, Monkeypod), CMU (hollow brick), corrugated metal, and glass. Every piece of that house was constructed on-site which Betty looked after the progress of the house.[218] A wood frame house with large glass windows under 6 feet deep overhanging eaves combine with partitions to provide both shading and daylight. Some of the windows through out the house are angled to reflect the direct sunlight. The interior walls are redwood bleach-stained to soften the color and highlight the grain of the redwood. *Ohia* wood from the Big Island was used for the floors. Many of the built-in cabinets, countertops, and several furniture pieces were made from a single, large piece of a monkey pod tree. Ossipoff not only designed the house but also designed the furniture and carpet, which was customary among the modernists of the early and mid-20th century.

Ossipoff's influence of Japanese architecture and craftsmanship was present in the construction of the home; he hired Japanese carpenters from Japan to build custom built-in shelving, cabinets, screen doors, and push hinge closets. Every space of this house

218 Bob Liljestrand, (Son of Howard and Betty Liljestrand), interview by Noryn Lau, The Liljestrand House November 8, 2010 .

has a function and utilitarian purpose. Catherine Thompson was hired as the Landscape Architect and was a family friend to the Liljestrands. Now, the house is being maintained and up-kept by son, Bob Liljestrand.[219]

4.3.4 Functional Analysis

Observing the Liljestrand house, there were aspects of the house that made this house functional. The design talents of Ossipoff and the Liljestrand's requirements for their personal needs resulted in a wonderful home. Ossipoff was able to deliver a design of a house that fitted the personal needs of the Liljestrand family and took full advantage of the site. From an exterior view, the house used common material to build the home, which was mentioned in *4.3.3 Layout and Construction*.

Figure 41: Living room with east facing windows.
Photo by Author, 2011

The use of natural lighting and ventilation played a major role in bringing the house to life, and reduced the needs for additional lighting. The placing of windows on the east side of the house brought in the warm morning sunshine into the kitchen, dining room, and living room, while from the living room and the bed-rooms there are commanding views to the west and the sunset. The illumination of the spaces brings out the warmth in the colors of the hardwood and furniture. The cool breezes rolling down the mountain brought cool and comfortable ventilation into the house. Along the corridor of the house connecting to each bedroom are these small windows that funnel the air up and into the house. Bob Liljestrand remembers never seen these windows closed and were

219 Bob Liljestrand, (Son of Howard and Betty Liljestrand), interview by Noryn Lau, The Liljestrand House November 8, 2010 .

always open.

The sliding doors of each bedroom that open to the balcony also brings in fresh air and cross ventilation. The clever Venturi principle was applied throughout the house, required no air-conditioning, as shown in Figure 31.


Figure 42 & 43: The kitchen, custom designed for Mrs. Liljestrand. Photo by Author, 2011

The kitchen was a particular part of the design to accommodate the needs of Mrs. Liljestrand. In the kitchen, she wanted all her countertops to be stainless steel, which made cleaning up a breeze. The island counter for the kitchen was a multi-purpose for preparing food, cooking, and eating meals on. Additional built-in pull out seating was also built into the kitchen island and in other locations of the kitchen. There are these built-in step latter, for Mrs. Liljestrand to climb up to reach upper cabinets. As far as cleaning and sweeping the floor, a dust chute that she would sweep the dirt and dust into, it was a clever idea.


Figure 44 & 45: Entertainment room downstair patio. Photo by Author, 2011

The living room was spacious with the fireplace being the focal point of the room. Built-in furniture was also designed for the living room, entertaining at least a maximum of 15 people. Views of Diamond Head and the city of Honolulu are visible from the living room, making this room pleasant. The entertainment room downstairs was designed purely to entertain large groups for gatherings, with a pool table, ping-pong table, oversized lounge seats, a cocktail bar area. The downstairs space was most functional used for entertaining guest.

Many of the cabinetry was an influence of Japanese craftsmanship, because of the workers building the house were Japanese craftsmen hired by Ossipoff. Every piece of that house was custom designed, built, and assembled on site. All the closets were push hinge closets, which gave a very clean and unobstructed appearance. Ossipoff's attention to detail was keen to the functionality and personalization for the lives of the Liljestrand family and their future.

4.4.5 *Fengshui* Analysis

According to the Geomancy Matrix, some of the *fengshui* principles do apply to the Liljestrand house, and some do not. Those that are not applicable are because of the Hawai'i passive design strategies using the microclimate of the site and macroclimate of Hawai'i.

Figure 46: View of the south shore of Honolulu from the Living room. Photo by Author, 2011

The Liljestrand house sits on the mountain hillside (Tantalus Drive) that is behind of the dwelling, which according to *fengshui* is believed to protect the dwelling from evil influences, cold winds from the North, and invasion. According to both Form and Compass school, the house should face a body of water to bring in good fortune to the home, which the Liljestrand house does. The views of the south shore ocean are unhindered from majority of all rooms. Although trees are pleasant and bring organic life to the built environment, not all placements of trees are good for proper *fengshui*.

Geomancers believe that trees on the northwest side of the site protect the house and bring happiness to the family, which does apply to Liljestrand House with trees located on the northwest portion of the site. Its said that in China the northwesterly winds would bring yellow dust from the Mongolian border, thus big trees would protect the dwelling from the polluted winds.

Also its site sloping down from north to south, from mountain to ocean (better if sloping towards water) is a good quality. The entry or driveway slopes gradually down to the house. The house itself is built on a gentle slope as well. The orientation of the Liljestrand house is oriented toward the south or ocean, capturing the views of the ocean. The front should face a valley, sea or lower ground so that the back should face a hill, mountain or higher ground so that the structure or town has ample protection and captures good *qi*. As far as having the main entrance in direct line with the north entrance it would be better if entrance is facing or placed south, but not in this case. The entrance faces somewhat back/north, but the entry sequence is not straight which is good according to *fengshui* principles. Displayed in Figure 40, to arrive from the port cache, you walk straight, and then turn left, then straight/forward towards the door, thus preventing the evil spirits still unable to enter the house because evil spirits can only travel in straight lines according to Chinese proper beliefs and also provides privacy.

Within the house, the living room is not quite placed in the center, but it is the where the functional rooms extended from. According to *fengshui* the kitchen is placed where it should be which is in the east portion of the house, thus the morning sunrise rises from the east and is in the element of the Wood (related to the east).

4.3.6 Conclusion

The Liljestrand house designed by Vladimir Ossipoff expressed the quality of using the site to its advantage and its entire surrounding natural environment. What he did as far as incorporating the natural environment underlines what *fengshui* is about, building in harmony with nature. The house sat on a hillside where the mountain was behind and the views of the south shore, the city of Honolulu was in front. This was a positive attribute in *fengshui*. The utilization of the natural ventilations through the Venturi principle made the house pleasantly cool and comfortable. The placement of windows let in and out air, but also brought in natural sunlight to filter in throughout the house where it was needed. Examining this house showed that although *fengshui* was not considered in this design, it has any features that followed the concept of *fengshui*.

This leads me to the next chapter; I will be designing a house that integrates functionality and principles of *fengshui*. Like what Ossipoff did, utilize the site to my advantage and letting the land tell me what I should do.

Pay attention to the natural surrounding environment such as:

- what direction is the trade winds blow from
- how will I capture the trade winds
- how does the sun rise and set across the site
- which side of the site would get the most sun (morning and afternoon sun)
- where are my best views and how to showcase them

These will be some factors that must be included in my design. In chapter 5, I will guide you through my process and outcome of a successfully functional and *fengshui* proper house in Hawai‘i.

CHAPTER 5

5.1 Contemporary Application of Chinese Geomancy in Hawaiian Context

As my final Doctor of Architecture project, this chapter includes *fengshui* principles applied to the design of a house located in Honolulu, Hawai'i. This chapter contains site analysis, program requirements, schematic design drawings, which are then further defined by a hypothetical client in the subsequent stage.

5.1.1 The Island of O'ahu

The island of O'ahu is known as the "gathering place" and the third largest island with 180 km of general coastline that contours a highly irregular shape. O'ahu had two massive landslides, that removed one-third of the northeastern portion of the island and approximately half of the western side. The shape of O'ahu is constrained by two mountain ranges

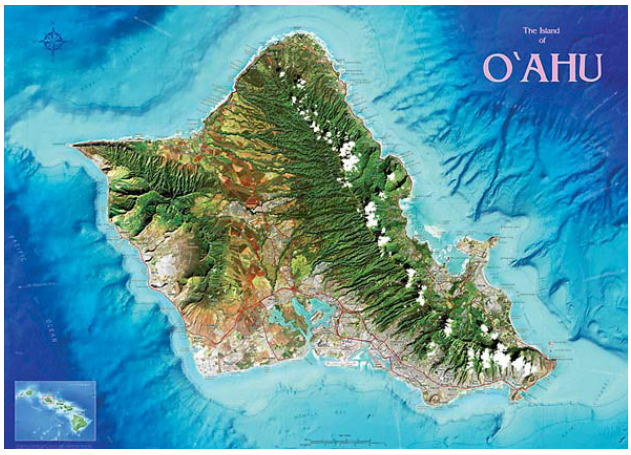


Figure 47: The island of O'ahu
http//www.boredfeet.com/mappages/map9780974153131.php

that are eroded remnants of two separate shields truncated by the prodigious slides.[220] These two separate, but overlapping volcanoes are known as a volcanic doublet. Its asymmetrical butterfly shape is formed by two mountain ranges: the Waianae Range in the west and the Koʻolau Range in the east. Volcanic eruptions in the southeastern portion of the island formed the Diamond Head, Koko Head and Punchbowl craters giving Oʻahu's uneven shape.[221]

The state capital of Hawaiʻi is Honolulu located on the island of Oʻahu, and is the largest city in the State (75% of the population live on Oʻahu). Oʻahu is the most densely populated Hawaiian island, home to almost 900,000 of the total 1,200,000 residents in the State. The combination of a dense population, government, and an industry dedicated to tourism, results in heavy use of the islands shorelines.

5.1.2 MānoaValley

Mānoa valley is located in Honolulu, Hawaiʻi. Mānoa Valley is a residential neighborhood approximately three to four miles east and inland from downtown Honolulu. Mānoa's entire valley runs from Mānoa Falls at the *mauka* (mountain, most inland) and ends at King Street (beginning of Moʻiliili). Mānoa stream begins at the base of Mānoa Falls and runs through the valley before joining Palolo stream to form the Mānoa-Palolo drainage canal, which flows into the Ala Wai Canal. This valley receives daily sprinkles of rain through the entire year, even in the hot seasons. With constant precipitation, the valley is rich in vegetation and lush greenery. The neighborhood is composed of private houses mainly built before the 1960s including many historic houses of colonial style and low-rise condominiums.[222]

In the Valley of Mānoa, there also are Chinese cemeteries, which are the oldest and largest in Hawaiʻi. Starting in 1852, the Chinese community gradually began to purchase the land from the landowners that included the Bishop Estate. The Chinese cemeteries

220 "Hawaii's Coastline- Introduction," School of Ocean & Earth Science & Technology, 15 June 2005, <http://www.soest.hawaii.edu/coasts/publications/hawaiiCoastline/intro.html> (2 November 2010).
221 "Oahu Travel Guide," Hawaiian Style Organization, L.L.C., 2001-2010, <http://www.hawaii-guide.com/index.php/oahu> (2 November 2010).
222 "Manoa," Wikimedia Foundation Inc., <http://en.wikipedia.org/wiki/Manoa> (5 December 2010).

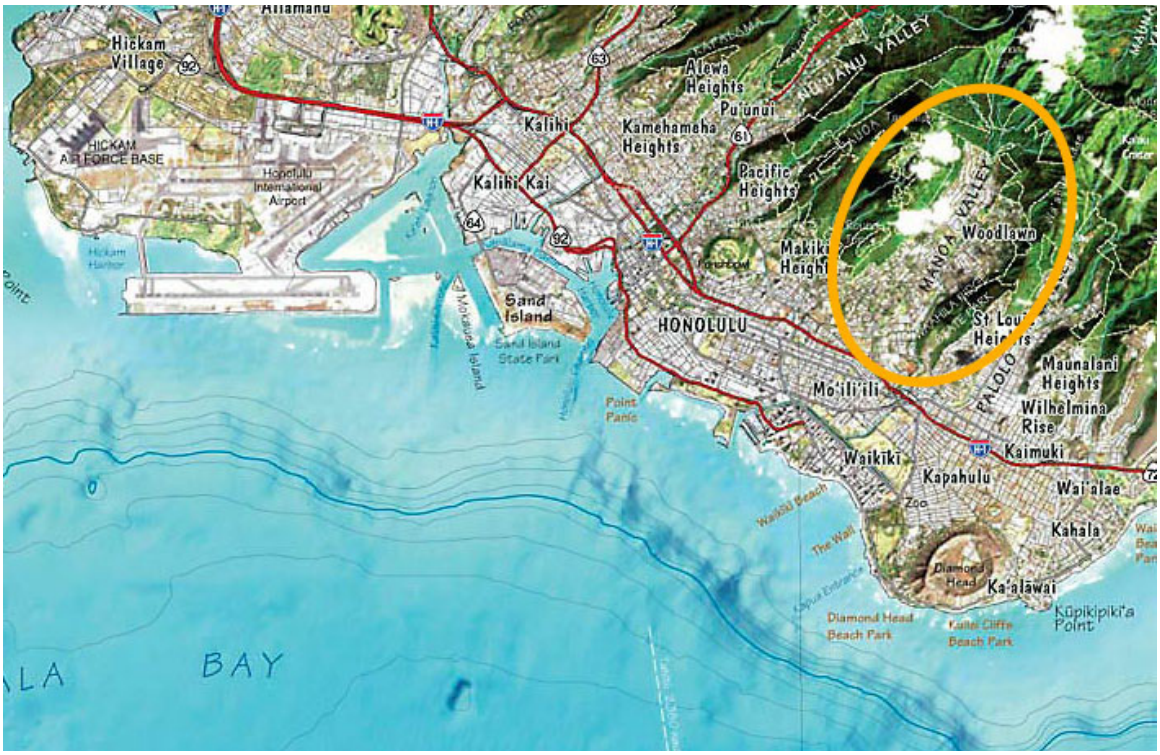


Figure 48: The yellow circle indicates the location of Mānoa Valley, on the south side of O'ahu
Modified image by Author, 2011

There is a shopping center "Mānoa Marketplace", with various shops, restaurants and services as well as a weekly farmer's markets. Mānoa Marketplace offers a wide variety of specialty shops, restaurants, island foods, a supermarket (Safeway) and a drugstore (Longs Drugs). It is the primary shopping location for valley residents. Near the shopping center there are educational institutions that include Mānoa Elementary School, Noelani Elementary School, Punahou School Mid-Pacific Institute, Saint Francis School, and a handful of small, private pre-schools. The prominent educational institution is the University of Hawai'i at Mānoa, founded in 1907, the only university in the state of Hawai'i.

5.1.3 The Site and Property Information

The site that I have chosen for the Design Phase of my Doctorate project is located

223 John Fisher, "Exploring the Manoa Valley of Oahu, Hawaii," The New York Times Company, About.com Guide, 2010), <http:..gohawaii.about.com/od/oahuactivities/a/manoa_valleyb.htm.> (9 December 2010).

Figure 49: An aerial view of the site indicated in yellow, Google maps.
Modified image by Author, 2011

This site receives cooling trade winds from the north/northeast direction, naturally the trade winds sweep down from the mountains and into the valley. Since the site is in front of the east mountain ridge, the site receives late morning sunlight, but is exposed to south/southwest sunlight due to the sunset setting over to the west. When standing in the middle of the site, a panoramic view of Mānoa valley is revealed. This sweeping view captures the mountains, into Mānoa valley, and a glimpse of downtown, with a few obstructed objects, such as telephone poles and wires.

Figure 50: A panoramic view of Mānoa Valley from standing in the middle of the site
Photo by Author, 2011

Figure 51: A view of the site provided by Google maps

Date Sold: 4/30/2010
List: $599,999
Sold: $500,000 FS - Fee Simple

Site Location
TMK: 1-2-9-057-031
Address: 3083 Lanikaula Steet
Honolulu, Hawaii 96822

Owner's Information
Name: Greg R.K. Young U/Etal

Neighborhood: Manoa Valley
Region: Metro

Living Space
Living Area: 2,380 sq.ft.
Bedroom: 4
Bathroom: 2

Land Information
Land SF: 5,700
Land Acres: 0.131
Zoning: 04 - R-7.5 Residential District
Flood Zone: X
Structures: N/A
Street Width: 0

Lot Dimension: 0
Lot Number: 25
Monthly Maintenance Fee: $0
Monthly Assn Fees: $0
Other Monthly Fees: $0
Crops: N/A

Land Information
Assd Val Land: $462,000
Assd Val Imprv: $0
Assd Val Total: $462,000

Other Information
View: Mountian
Predominant Topography: Gentle slope and level
Lot Description: Clear
Location: Inside
Property Frontage: Other
Number of Lots in Listing: One
Land Use: Residential
Easements: Drainage
Utilities Included: Cable TV, Overhead Electricity, Public water, Sewer, Telephone
Sewer: Connected
Restrictions: N/A
Surface Road Frontage: County Road
Improvements: N/A
Possible Use: Single Family
Set-Backs: Of record
Disclosures: Property Disclosure Statement

5.2 Positive and Negative Attributes of 3038 Lanikaula Street

5.2.1 The Site

Figure 52: View of the site in May 2010, 3083 Lanikaula Street, Honolulu, Hawaii 96822
Photo by Author, 2010

Positives Attributes

- Gentle grade/gentle slope
    - Ideal grade for a lot of land
    - A slopes site is good to build a house on
    - A sloped site provides good drainage
- A mountain ridge is behind the lot
    - The mountain provides protection to the house.
- Street (Water/River – form of *qi*) is located in front of the lot.
    - A house that faces the street is good. The family will enjoy and receive wealth into their home
    - The street is a secondary street; the flow of traffic is minimal and not congested.

This means the flow of *qi* is calm and not harsh
    - Traffic runs both directions
- Square plots are preferable
    - As a rule, if the site slopes, the house should sit on the higher portion of the plot rather than on the lower area
    - Some vegetation on the lot

Negative Attributes

- A house is located above the lot

5.2.2 The Existing House


Figure 53: Newly completed house on the site. June 2011
Photo by Author, 2011

Positives Attributes

- Rectangular shape (foot print)
    - Good, not irregular
- Rectangular/square shaped bedrooms
    - Good, not irregular
- The first space that you enter is the Family Room
    - The residents will relax and make themselves at home.
- 5 bedrooms
    - Good

Negative Attributes

Site

- The site design does not follow the contours of the land, which could lead to flooding and drainage problems.

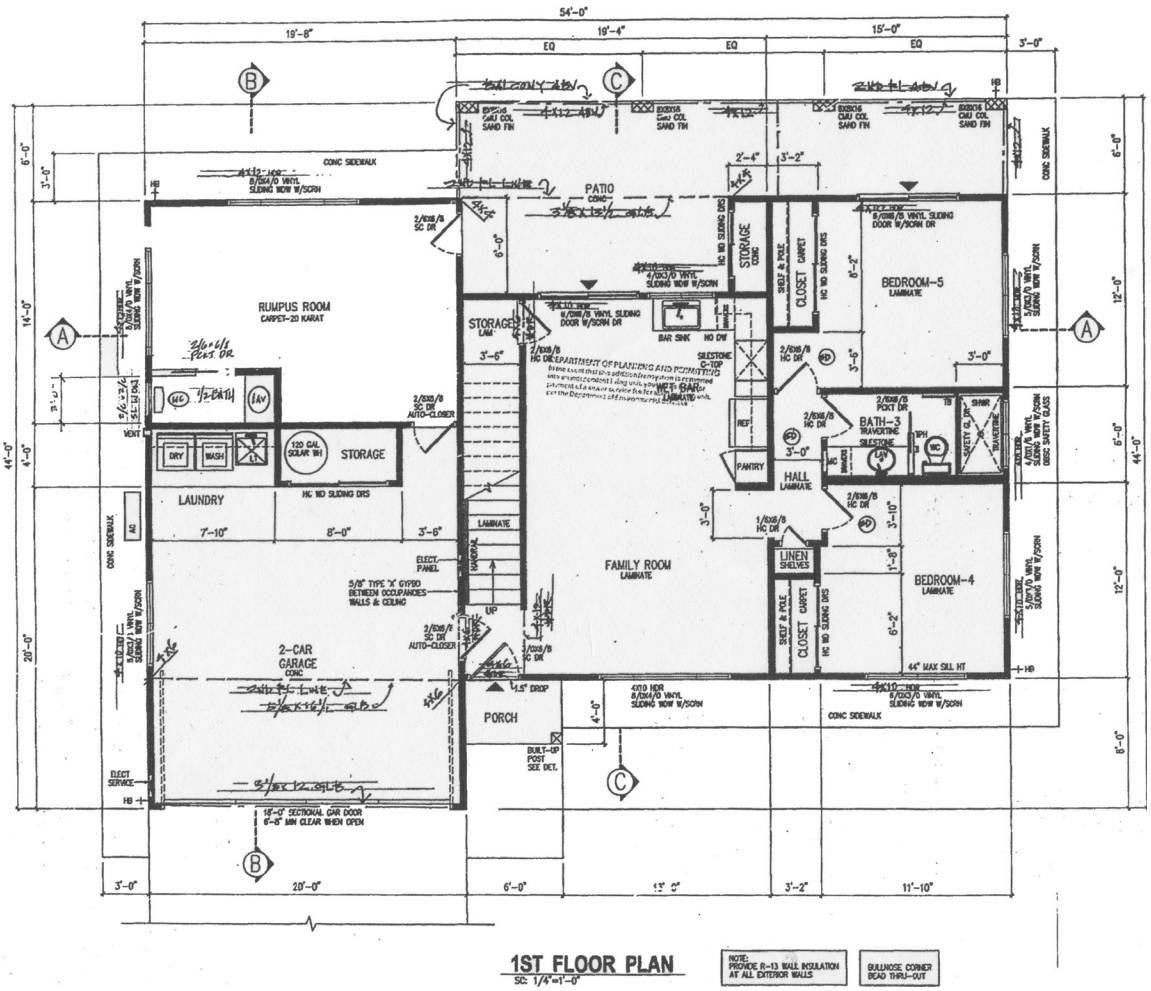


Figure 54: First Floor Plan of the exisitng house June 2011
Image retreived by Author from Department of Permitting and Planning, 2011

First Floor

- The main entry door is awkwardly placed. There is a secondary door that leads to and from the garage into the main house, almost back to back to the main entry doors.
    - Thus making the foyer of the house congested and the *qi* stuck.
    - These two doors are blocking each others doorway path (swing)
    - Door knobs that knock together are like gnashing teeth, can creates family conflicts
- The main entry door opens up directly aligned with the stairways, Figure 54
    - A stairway that runs straight towards the main door allows the *qi* and money to run out of the house.
- Bathrooms (First floor & Master bathroom) are located on the central line of the house
    - The residents will be ill somewhere along the central line of their body

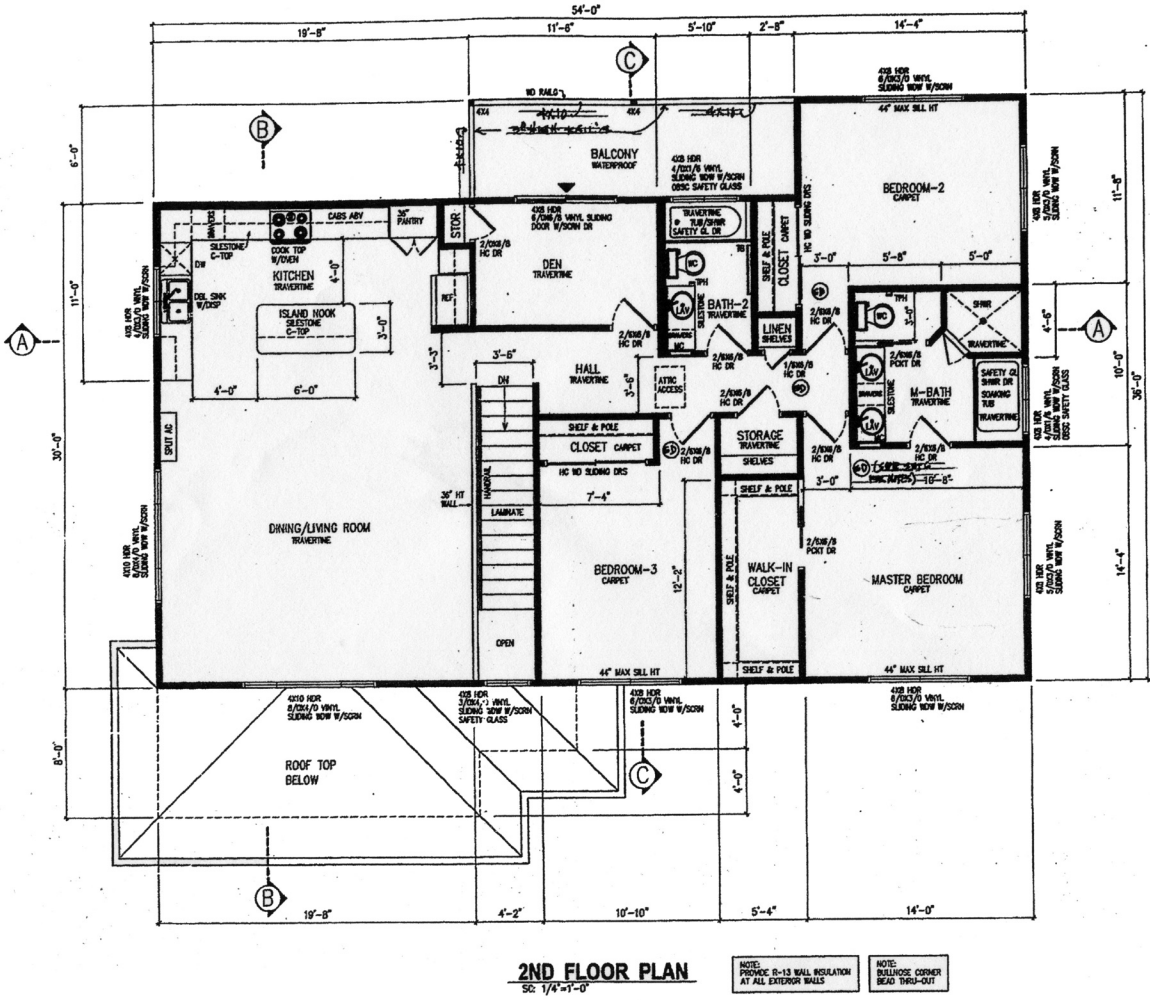


Figure 55: Second Floor Plan of the exisitng house June 2011
Image retreived by Author from Department of Permitting and Planning, 2011

Second Floor

- The hallway that leads to the Den, Bedroom-2, Master Bedroom, Bathroom-2, & storage. (7 doors)
    - Each door represents a different "mouth" with its own opinion, thus the residents will have continuing bickering among themselves.
- Placements of Master Bedroom is not located in the Marriage & Love Corner (SW-Front/ left)

Exterior of the house and Landscaping

Figure 56, 57, 58: Different views of the backyard, concrete retaining wall, close proximity to the neighbor, and no landscaping.
Photos bt Author, 2011

Figure 59 & 60: left: Left side of the property, retaining wall with no landscaping, right: viewing the front and right side of the property.
Photos bt Author, 2011

Note: It could be a good possiblity that the landscaping was not installed at this time of the photos were taken.

5.3 The Clients, The Liu Family

The Liu Family has decided to have their home designed using *Fengshui* principles. Before we get into the design aspect, let's get to know the family.

Blake and Kristin both met through mutual friends all attending the University of Hawai'i at Mānoa. Blake was focusing on his Bachelor of Science degree while Kristin attended Shidler College of Business. They became really close friends and enjoyed each other's company. When Blake graduated with his Bachelor of Science, he enrolled and got accepted into the University of Southern California, School of Pharmacy. Kristin was still working on her Business degree and wanted a Master of Business Administration. They went their separate ways, but still continued to keep in touch.

As years passed they both finally completed their college career with outstanding degrees. When Blake returned back home to Hawai'i he got a job at Physician Office Building (POB) II Queen's Medical Hospital as a Pharmacist. Also he realized the he had fallen in love with Kristin, although he was not sure if she felt the same towards him. They reunited over dinner at Alan Wong's, where they caught up with each other's lives and discussed the future. At the end of the three-hour dinner, Blake confessed that being away from her made him miserable and that he was fond of her. He told her that he wanted to be with her, she said the feelings was mutual. She too had missed him dearly. From that evening on, there were together as a couple.

Fast-forward four years, Blake and Kristin were now husband and wife. They couldn't be any happier. They lived in a two-bedroom apartment in upper Makiki, relativity close to down town and car-pooled to work. Blake works at POB II at Queen's Medical Hospital and Kristin works for Merrill Lynch as a Financial Consultant. Life was not complete without having children they wanted a family. Years later they had their first child, a boy named Kevin. Their two-bedroom apartment in upper Makiki was perfect until she found out she was pregnant. Two years later, a little girl named Beth joined the family. They needed to find a new home for their growing family. Blake and Kristin saved enough money, and started to look for a plot of land to build their dream house.

Luckily, they stumbled upon a vacant lot in Mānoa Valley while driving to their

friend's house for a party. They saw it and thought about it and believed that Mānoa Valley would be the best location to raise their family. The Mānoa community has many great qualities; it's quiet, friendly and peaceful neighborhood. The address of this site is 3083 Lanikaula Steet, located along the east side ridge of Mānoa Valley. They purchased the lot and their dream house soon became a reality.

Husband: Blake Liu
Born: February 9, 1970 (41) – Dog, Metal, (+)
Occupation: Pharmacist, POB II, Queen's Medical Center

Wife: Kristin Liu
Born: September 27, 1974 (37) – Tiger, Wood, (-)
Occupation: Financial Director, Merrill Lynch

Son: Kevin Liu
Born: December 2, 2005 (5) – Rooster, Wood, (-)
School: Punahou School
Activities: Baseball and Soccer

Daughter: Beth Liu
Born: July 8, 2007 (4) – Pig, Fire (-)
School: First Chinese Church of Christ
Activities: Ballet

5.4 The Program

The Liu Family wanted a spacious but cozy home. These were the requirements that they wanted:

- 4 – Bedrooms
- 3 – Bathroom
- Kitchen (opens into the Multi-purpose room)
- Great room (Living and Family Room)
- Dinning Room
- Study Room
- 2 Car garage with Storage
- Laundry space
- Front and Back yard *(lanai*) (Blake wants a low maintenance yard)

5.5 The Design

Designing a home for a family must not only take into account their needs and wants, but also consider the site and surrounding natural elements (prevailing winds, sunlight, visual scenery, etc.). Designing a house that is functional is one task, but including *fengshui* principles adds another layer of criteria. I will propose a house design that is functional and *fengshui* proper. In addition, *fengshui* adds unforeseen auspicious principles that will contribute to the well balance of harmony in the home of the family.

5.5.1 Chinese Flower Knot

Before jumping into the design of the house, I began with several precedent studies. I selected five different precedents to guide my design of for this house; a Chinese coin, Chinese flower knot, *ying* and *yang* fishes, lotus flower, and firecracker. All five schemes have meanings that are relevant to *fengshui*. The Chinese flower knot was the best scheme that best fit the context of the site and symbolizes the meaning of this house and the family who will live in this house. The symbolism behind the Chinese flower knot are reunion, friendliness, peace, marriage, love, harmony, prosperity, good wishes, beauty, happiness, and warmth.[224] A Chinese knot is crafted typically from a single rope that is bent,

224 Odyssey tours, accessed October 14, 2011, http://www.chinaodysseytours.com/special-topic-about-china/china-red-the-color-of-china.html.

Figure 61: Chinese Flower Knot
http://eclecticitee.files.wordpress.com/2011/07/ashleys-flower-knot.jpg?w=150&h=112

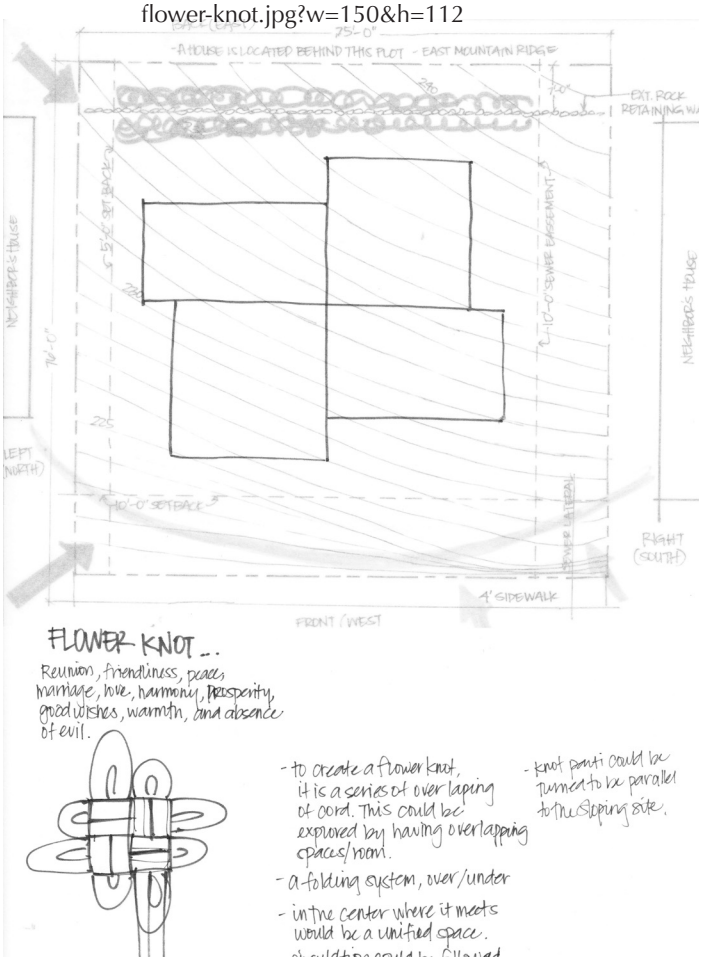


Figure 62: Precedent studie sketch: Chinese Flower Knot

intertwines, and tied to create a knot. Thus expressing an endless circle of a happy life, which is an important characteristic of a Chinese flower knot.

The characteristics of the Chinese flower knot drove the parti (overall big idea) of the design and its meanings and values enrich the design for this house. A series of intertwine of one-cord translates to the flow between spaces or rooms throughout the house. The knot's center represents the core, which unites the entire house. The process of creating a flower knot has a directional pattern gives circulation possibilities of how one moves throughout the house. The pull and tighten of the cord translates to spaces being pulled away or tightening to create an area. All of these characteristics will provide additional foundation for the design of the house that meets all requirements of being functional, *fengshui* proper, and the Chinese flower knot.

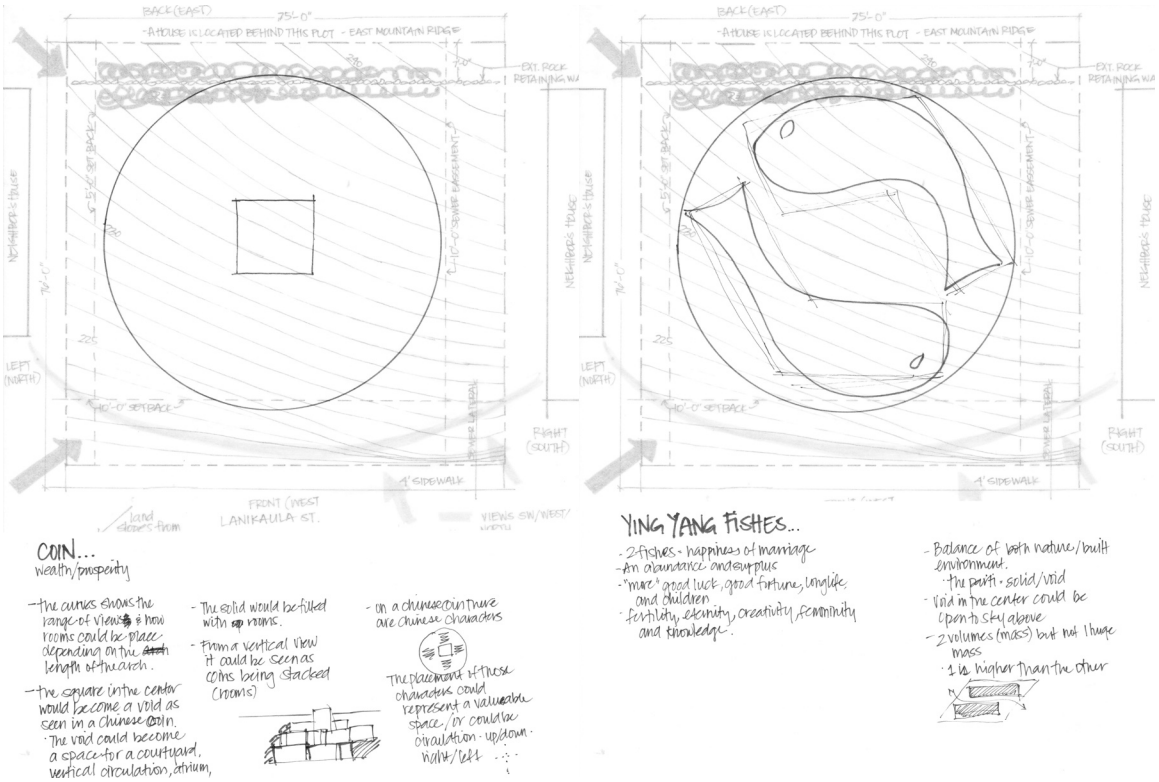


Figure 63 & 64: Precedent studie sketches: left: Chinese coin, right: *Ying* and *Yang* fishes

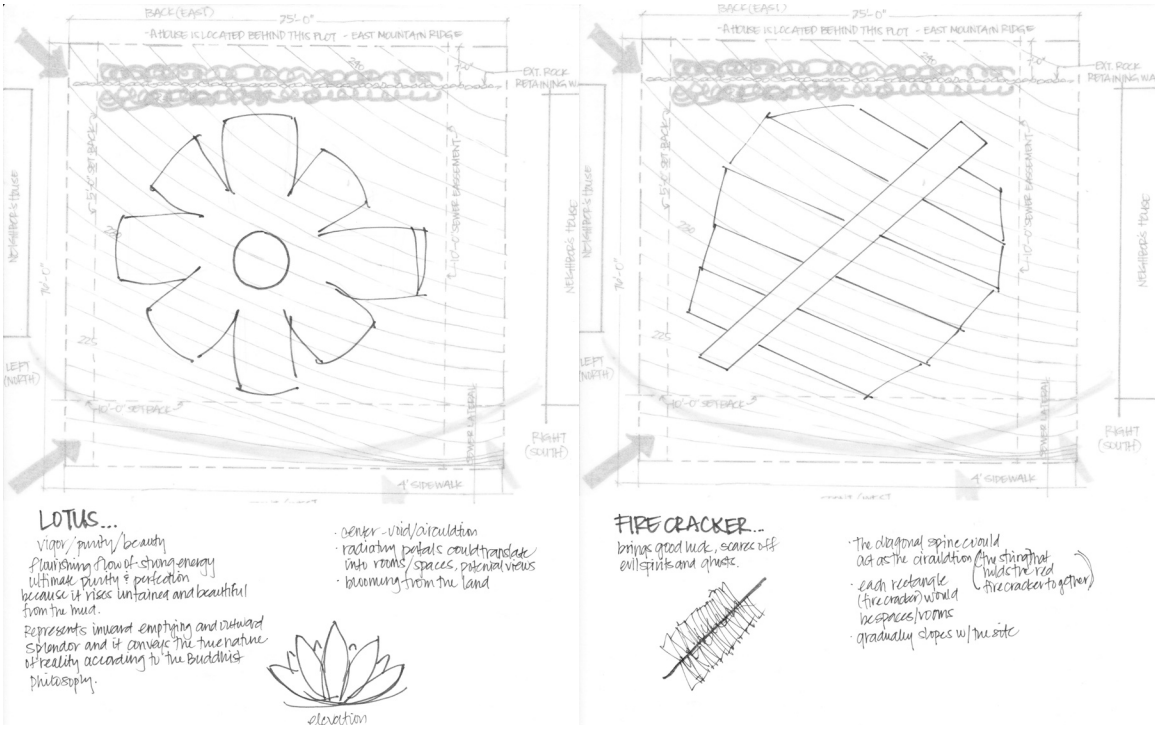


Figure 65 & 66: Precedent studie sketches: left: Lotus flower, right: Firecracker

5.5.2 Schematic Design, Trial and Error

Designing a house is not as easy as I thought. There are many parameters that must be taken into account including codes and regulations from the Land Use Ordinance, the site, *fengshui* principles, and functionality. Designing is a process of trial and error, re-adjusting, emitting, and polishing. The first design that is created is far from the final design, but just the start of many revisions. The revisions of the design only get better and better as the design develops from the concept.

I have been through at least 12 revisions; re-positioning and re-adjusting spaces while keeping in mind the *fengshui* principles and functional aspects. At some points throughout design process, the design would work functionally, but then I would think, "Does this work in terms of *fengshui*." Sometimes it would be yes, other times it would be no. It felt like a tug of war between the two, which became very frustrating and most challenging. Not only did I have to apply these two factors simultaneously, I had to consider natural lighting, natural ventilations, visual connects of interest (internal and external), horizontal and vertical circulation, procession, private and public spaces, and landscaping. The outcomes of the trail and error process became successful both in the realm of functionality and *fenghui* as best as possible.

5.5.3 Issues

Throughout the design process, I was faced with issues that needed a better solution. First of all, I decided to use the original topography of the site instead of the existing site. The original site has a diagonal slope from 0′ to 20′ and 10 feet sewer easement on the right side of the site making the buildable area smaller when considering required setbacks. The building envelope did provide valid information of the overall possible massing of the house. Nevertheless, I knew that the overall mass of the house would not consume the entire site like the existing house that sits on the site now. I wanted to work with the sloping topography and have the house sit nicely on the site, rather than grading the entire site completely level. Cut and fill was the best strategy for resolving this issue, which worked well in harmony with the site and also corresponds to the *fengshui* principles.

Another matter that needed to be resolved was the location of the two-car garage.

The initial start of the garage was to place it in the back of the site away from the street because I felt that the front façade of the house should be most prominent rather than the façade of a garage. The placement of the garage moved everywhere around the site. It would be best sited on the right hand side because the 10-foot sewer easement could be the driveway up into the garage.

A reoccurring conflict was the location of the foyer, the main formal entry to the house whether it was going to be located on the ground floor or on the second floor. The placements of the public and private spaces were initially in conflict. It is unpleasant to climb a flight of stairs to get to your front door, but entering the house at ground level would be more enjoyable. Having a modest procession from the sidewalk to the main front door of the house became a successful result.

Overall there were many challenges that came about, but were resolved in a sophisticated manner.

5.5.4 Functional Analysis

The Liu's program for the house was fulfilled with additional extras that would make their lives in this house even better. I will address the functional aspects in this section and will cover the overall floor plan of the house. Refer the drawings in *5.8 Drawings of the Liu Residence*. I will take you on a tour of this functional house in a systematic order starting with the entry to the front door. The formal main entry to the house is visible from the street where a pathway from the sidewalk leads you to the front steps to the front doors without a view of the garage doors. As you enter the double height foyer you then see one flight of stairs that lead you up to the main living spaces. Another entrance to the foyer is accessed from the garage through the mudroom. A mudroom is an informal transitional space for the family to allow them to remove all sodden or dirty layers before entering the house. A shower stall is provided for washing off mud or dirt off of shoes or clothing and to wash your gardening tools and a pet.

From the foyer to the second floor, we have a bedroom and bathroom off to the right, the great room and dining room in the center and the kitchen further back. Tucked away to the right is bedroom 1 and bathroom. This bedroom may be used for guests (family and friends) or can later be changed into an office. A private door is provided for

the guest

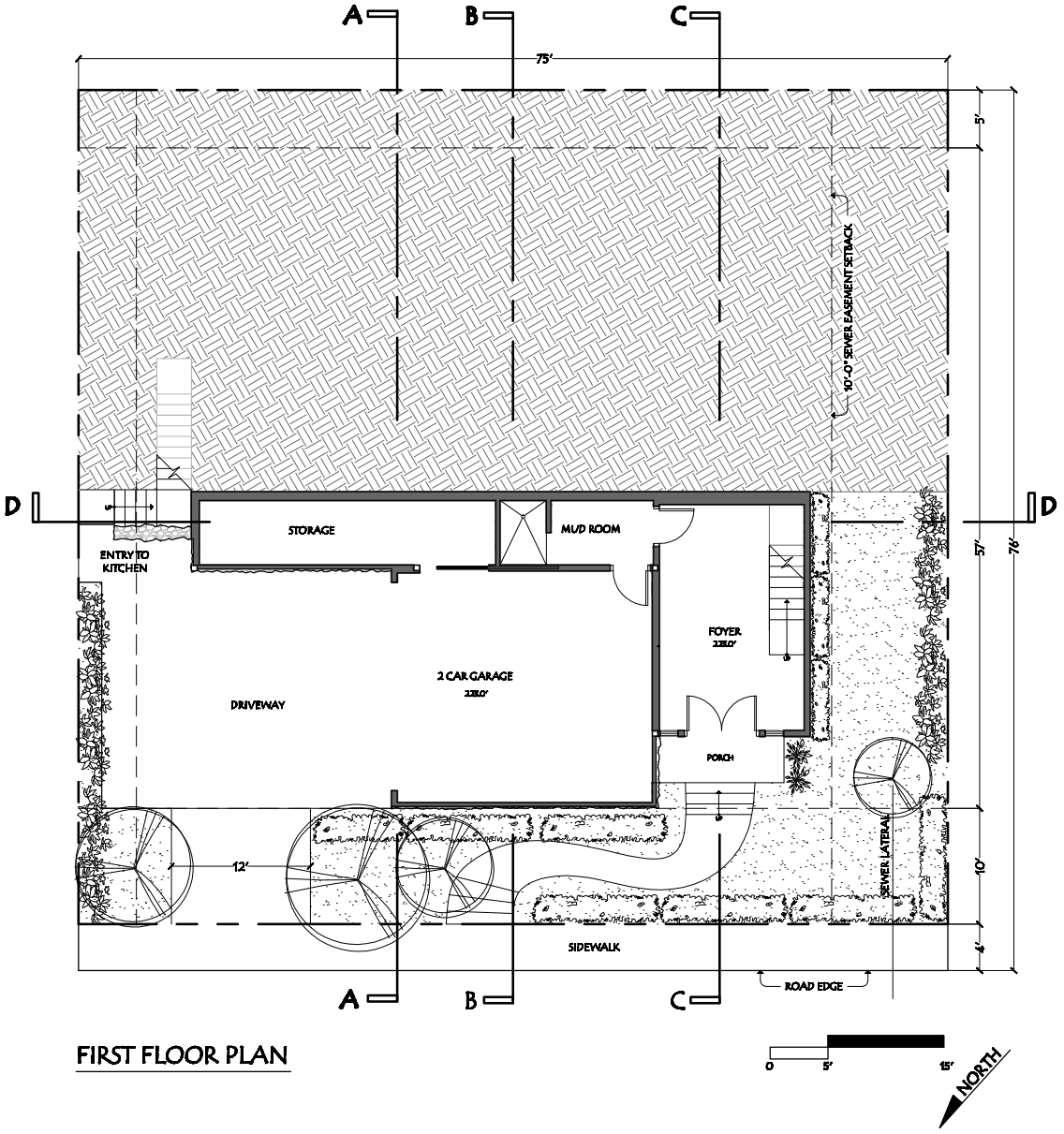


Figure 67: First Floor Plan of the Liu residence

to enjoy their own garden at their leisure. The bathroom has a dual purpose, a bathroom for the visiting guests staying overnight or longer, and a powder room.

The great room and dining room are spacious and open to one another. This central space opens itself to maximize the visual connection of Mānoa Valley to the backyard. From the great room, you could go outside onto the balcony to view the spectacular 180º

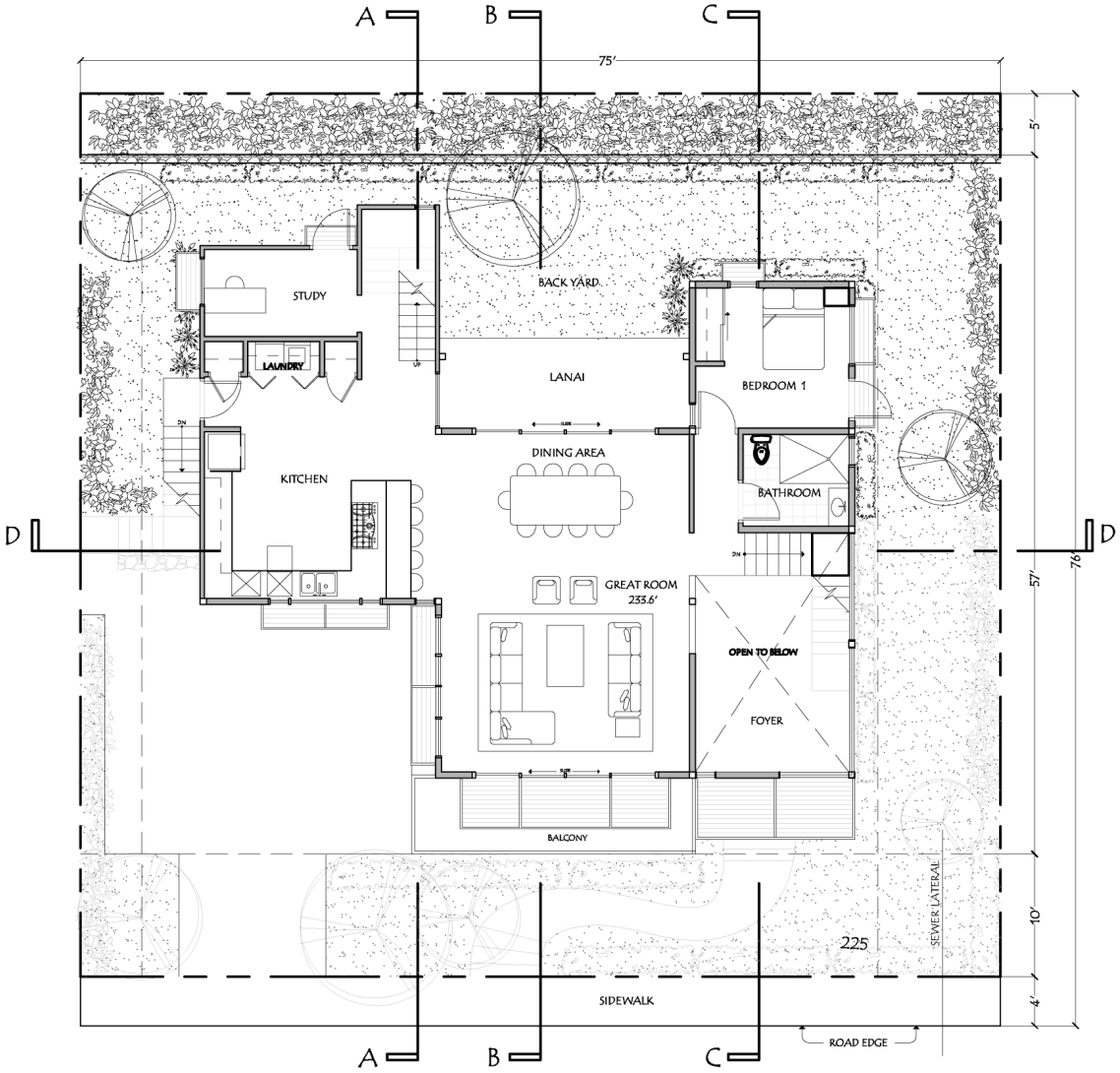


Figure 68: Second Floor Plan of the Liu residence

views from the mountains of Mānoa, down into the valley, and downtown. The dining room is not far away from these views as well.

Pass the great room and dining room is the kitchen. The kitchen is a very important space for Kristen. A separate entrance to the house was added to provide direct access from the garage when carrying groceries into the kitchen. This kitchen is big enough to fit more than one cook. While standing at the sink or stove, you can view many activities

happening within and surrounding your house. If you are standing at the sink, you can look out the window enjoying the view of Mānoa valley and also see who just pulled into the driveway. When cooking or preparing food near the stove you can see into the great room, someone walking up the stairs to the second floor from the foyer, the dining room, the lanai and backyard, and someone coming and going up and down the stairs from the third floor. Within the kitchen proximity are a series of closet doors. The laundry unit (washer and dryer) is located in the center set of doors and the remaining closets will be used for the pantry and storage.

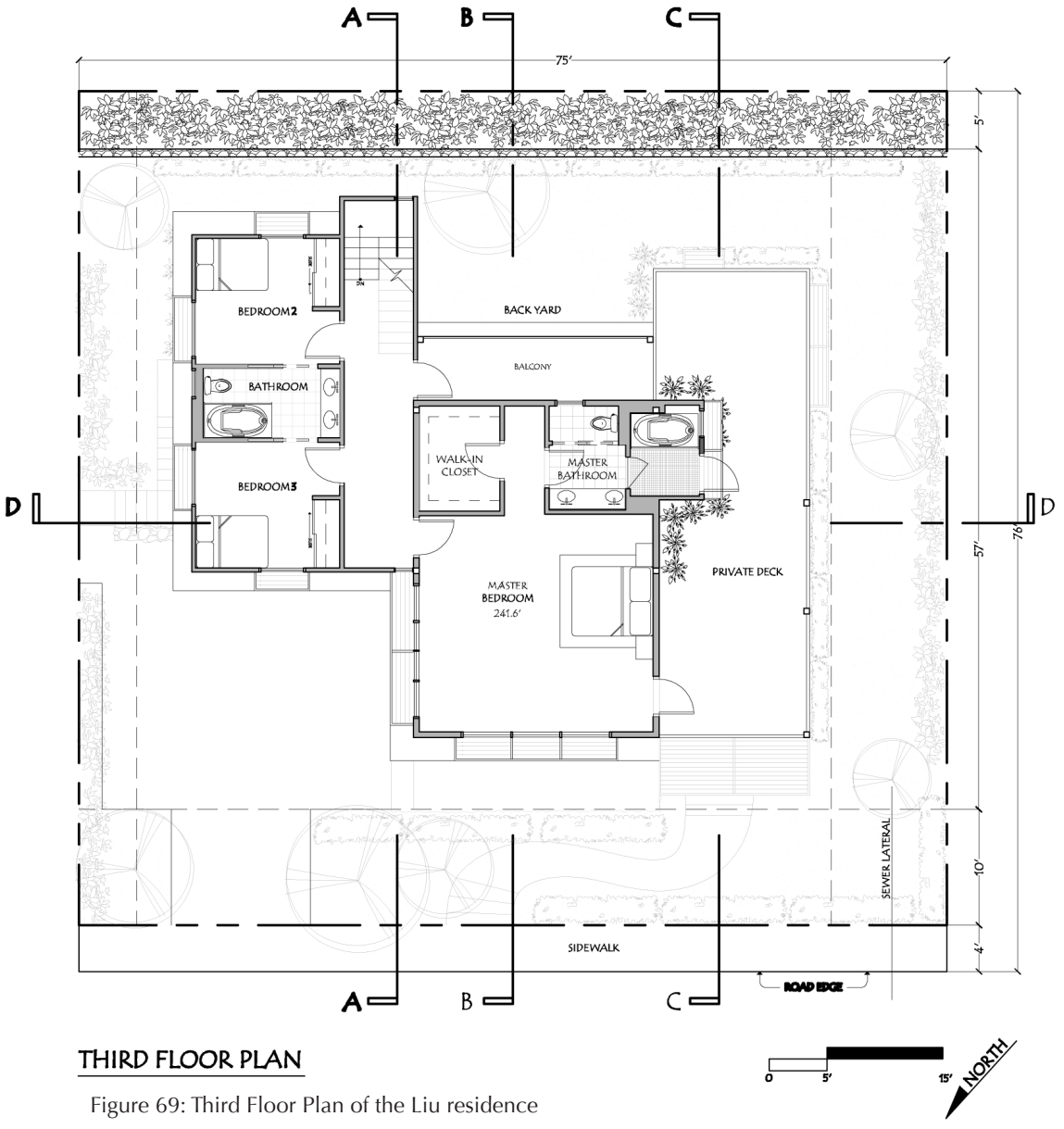


Figure 69: Third Floor Plan of the Liu residence

As you move along toward the staircase, tucked away to the left is a private study room or office. This room also has a door that leads you outside to a garden when you need to take a break, fresh air, or inspiration.

To continue the tour, walk up the staircase you just passed and you have arrived to the third floor. On the third floor, private spaces such as bedrooms are located here. Bedroom 2 and 3 are spacious enough to fit a queen size bed and a desk. These two bedrooms would be for the children in which they will be sharing a "jack and jill" bathroom, accessible from each bedroom by pocket doors. There is a balcony that is located along the hallway in which you can view the entire backyard.

At the end of the hall you will arrive at the Master bedroom suite. This Master bedroom suite has a walk-in closet large enough for both Blake and Kristen to have ample space for their clothing and Kristen's shoes. The master bathroom is generous, with his and her sink, a water closet (toilet), a tub, and a huge shower that can fit the entire family. A "plus" feature to the master bedroom suite is a private roof top deck accessible from the bedroom or from the bathroom near the shower. The master bedroom suite also has views of Mānoa Valley as well.

5.5.5 *Fengshui* Analysis

5.5.5.1 The Site

The site that I have chosen for this house is located on a mountain ridge, which is behind the site providing protection to the house, but also a house above and behind the lot. Because a house above and behind is not good *fenghui*, landscaping was designed so that it minimizes this shortcoming. In front of the site is a street. In Form school, a street is substituted as source of water, like a stream or river. Lanikaula Street is a non-congested secondary street and traffic flows in both direction, meaning that the flow of *qi*, is calm and not abrupt. The shape of the site is square, which is preferable for a good balance and the site slopes from back to front given an indication of good drainage.

The house that I have designed for the Liu family sits nicely on the sloping site. I feel like the house grew out of the ground and is in harmony with the site. Because of the building envelope and the program of the house, I needed to cut into the land to some extent. The existing house design required excessive cutting to create a totally level grade

for the house. I only cut one-third of the property, which still respects the *qi* of the land. The large rocks found during excavation would be used in the building material for the rock wall facades, which I will discuss later in this chapter. Respecting the concept of *ying* and *yang*, I have included green spaces that wrap around and embrace the house. These green spaces include a welcoming front yard, intimate gardens, herb garden, backyard attached to an open lanai, and a rooftop deck with vegetation.

5.5.5.2 My Interpretation of the Bagua martix

I will be taking you on a *fengshui bauga* matrix tour of the house. The driveway is located near the street for easier driving access into the garage. The driveway and storage room is placed in the front left corner that is the "Love and Marriage" area. The respectable room would be the master bedroom, but in this situation the master bedroom does not occupying this area. It can be cured with the corresponding colors of the front left corner; red, pink, blush tones. This apparent mismatch can be resolved with red, pink, or blush tones flowering plants or trees and fruit bearing trees would be a solution. I have chosen red hibiscus plants to go along the property line of the site and also a plumeria tree. The next area is front middle, "Fame and Reputation" where the 2-car garage is located. There is not much of an explanation of the purpose of having the garage located here; this is more of a functional purpose.

Leading up to the formal main entry to the house, you would have to walk along a short undulating path. The Foyer and main entry into the house is positioned in the front right, "Wealth and Prosperity" corner. The front door represents the "mouth of *qi*", and is where positive energy enters your home. The street in front represents a flowing stream in shape school, and the

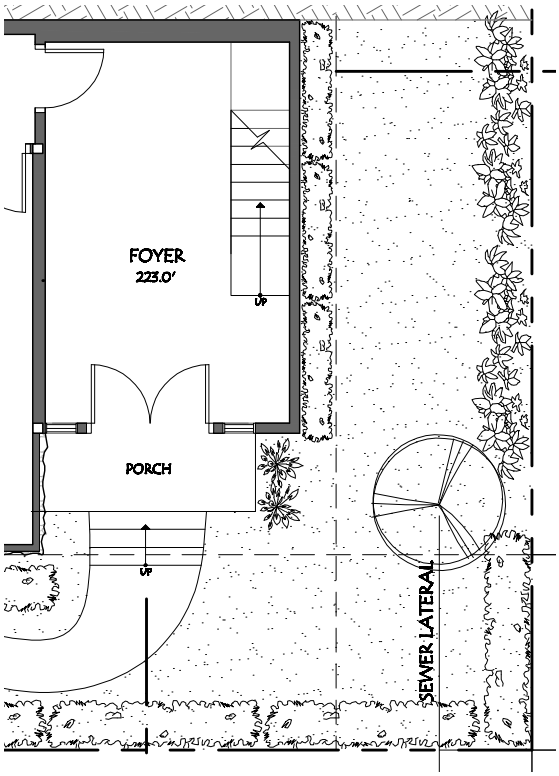


Figure 70: Front Left, "Wealth & Prosperity", Foyer

flow of money, wealth. The front doors are facing the street, welcoming *qi* to enter and is appropriate because *qi* is a representation of the flow of wealth. As you enter the Foyer you see a staircase leading you to the main living spaces at the second floor. Having a staircase align with the main front door like the existing house now in figure 8 is an example of your *qi* escaping out of your house rather than gather *qi*. In this house, the staircase is pushed off to the right side against the wall and does not directly align with the front doors. The double height ceiling and the large picture windows allow the natural sunlight to fill this space making the foyer feel uplifting, open, and grand.

When you reach the second floor, immediately to your right is Bedroom 1 and a bathroom. Bedroom 1and bathroom is located in the right middle, "Family and Elders" and back right, "Skills and Knowledge" area. "Family and Elders" represents your ancestors and elders, your relationship with our family and your foundation of life. This room would be used for visiting family members or friends. "Skills and Knowledge" embodies personal strength, resourcefulness, and self-control and intelligence. This bedroom can also be used as a child bedroom as well, promoting wisdom and intelligence. A private entry is for their particular use to relax in the garden.

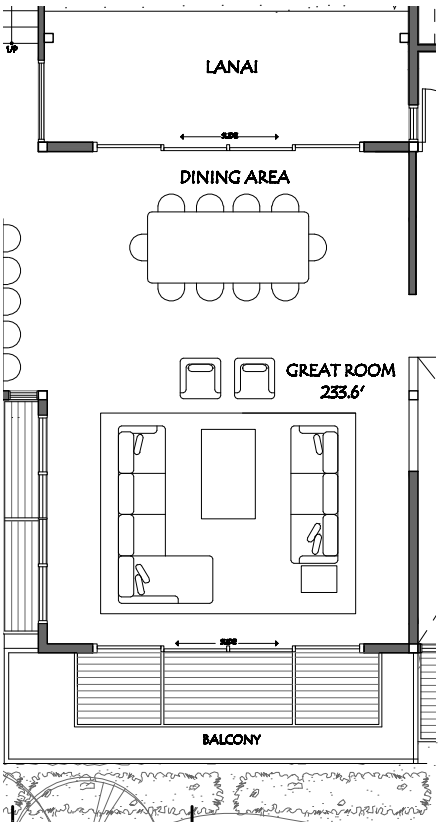


Figure 71: Center, " Health", Dining & Great Room

As you are standing at the landing of the second floor you are entering the public spaces of the great room, dining room, and kitchen. My interpretation of the *bagua* matrix, the great room and dining room is located in the center "Health" area. The center "Health" means a place where all areas of your life converge. The center should actually be a void space clear from clutter, like a courtyard. Being center also means to be centered and grounded with one self. Because the great room and dining room is in this position, I see it as opportunities to promote family bonding and interaction with each other. The great room serves as a space to entertain your guests with

conversation and acknowledge that the relationships that you build with your friends and family are truthful and respectful.

The dining room also allows the family to slow down the fast pace and have a leisurely meal to nourish to your body and *qi*. Sitting at the dining room table eating and exchanging conversation helps promote family bonding. Not only are you nourishing your body with food, but also your relationship with one another.

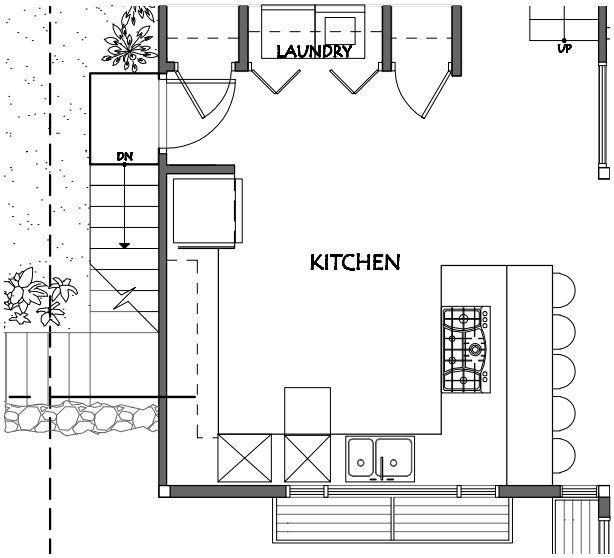
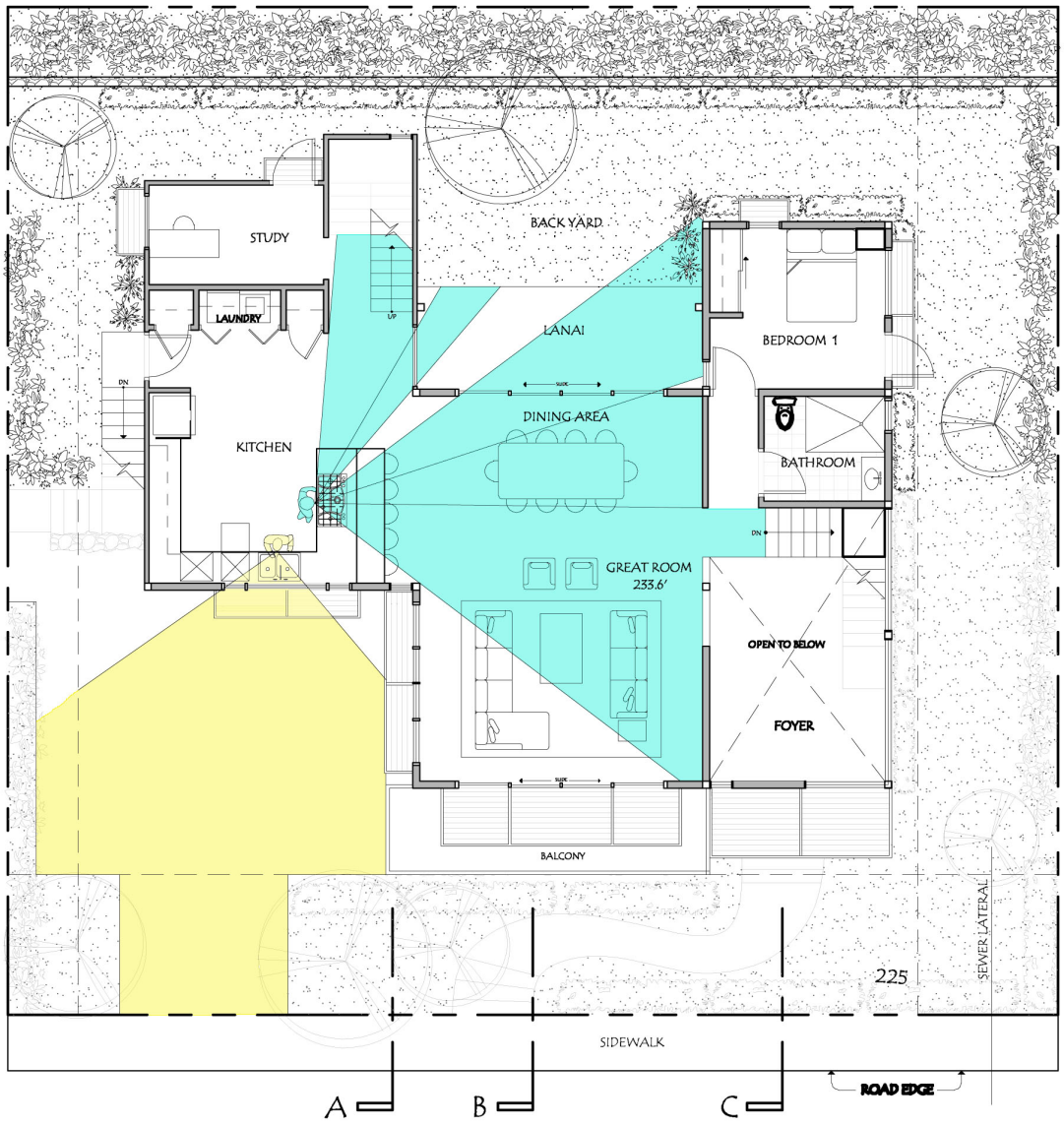


Figure 72: Left Middle, "Children & Creativity", Kitchen

Moving left away from the dining room is the kitchen. The kitchen is located in the left middle "Children and Creativity" area, suggests increasing your creativity and improving your relationship with your children. The kitchen honors the rituals of preparing wholesome meals that provide life sustaining energy and nourishment. Food symbolizes wealth and health. Also your kitchen is a strong indicator of your prosperity and financial reform. The placement of the sink provides an imposing view of who is arriving through the driveway and will not be startled when someone enters through the kitchen's entry. Typically you should always see who is approaching through the door for a sense of security. The cook must have commanding views while standing at the stove. The stove is situated where the cook has views of activities in the great room, who arriving up from the foyer, dining room, the lanai and backyard, and someone traveling up and down the staircase from the third floor. Because this is the "Children and Creativity" area, my interpretation of food is like art, food can be creative with tastes and presentation. The kitchen also provides valuable nourishment for the growth of their children.



VISUAL CONNECTIONS FROM THE KITCHEN

Figure 73: This diagram showing the visual connection from the kitchen, particulary standing at the sink (yellow) and stove (light teal).

Behind the kitchen is the study room, left back, “Travel and Helpful people” area, which indicates how others treat you and whether or not you have the support and guidance, also reflection on who’s deserving of you. Because the study is tucked away in the corner, this room is like a place of refuge. The desk must be in the power position in the room, while sitting at your desk you can see the door and the on-coming stream of people and energy. A solid wall should be behind you for support and stability. A large

window will provide a pleasant view of the garden outside while sitting at your desk, promoting creativity, inspiration, and productivity. If looking out the window is not as effective, you can engage yourself with your own garden outside if you need a break or a breathe of fresh air.

The backyard is in the back center position, "Career" area. Because it is not an internal space surrounded by four walls and a roof, it is still very much apart of the house as an outside green space. This backyard has a mango tree, bushes, grass that needs to be tended too for a lush and vibrant green space. Similar to your career path, hard work and diligence will provide you a successful career. The "Career" area is represented by the water element. If the plot of land were much bigger, having a pool in the back yard would be perfect. Since the site is limited, a water irrigation system would water all the plants around the house, but also represent the water element.

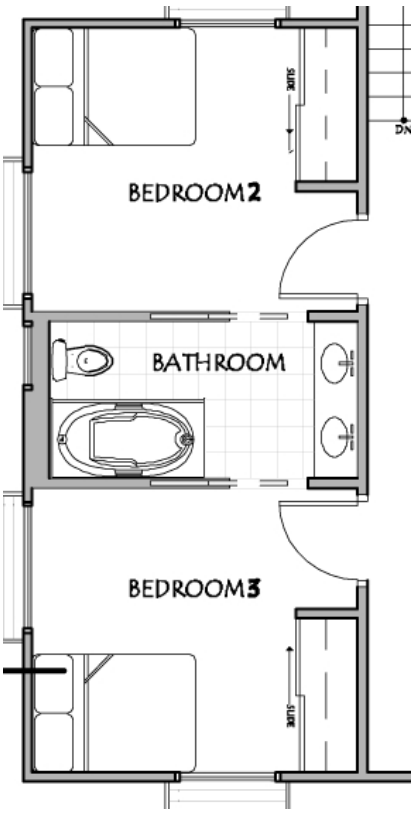


Figure 74: Left middle, "Children & Creativity", Children's bedrooms

Outside of the study room is a staircase leading you to the third floor to the private spaces, bedrooms, including the master bedroom. I have positioned Bedroom 2 and Bedroom 3 in the "Children and Creativity" area, which would make the placement of this bedroom for the children appropriate. Kevin and Beth will occupy these bedrooms and share a "jack and jill" bathroom.

At the end of the hall is the master suite. My interpretation of the *bagua* matrix the master bedroom is in the center, "Health." Because, the center "Health" represents the place where all area of your life converges, this area should be balanced and harmonious. The element that correlates with "Center and Health" is the earth element. As the earth element this means that a solid foundation will allow you build a stable life. I believe this truly applies to the relationship of the husband and wife. The hierarchy of family relationships should be: husband and wife, parent and child, and elder siblings and younger siblings. Husband and wife

should have the strongest bond and is one unit, meaning happily in love, emotionally, spiritually, and physically supportive. Without this foundation, the bond of this unit will be distorted and broken, which can trickle down to the children, creating a discontent family.

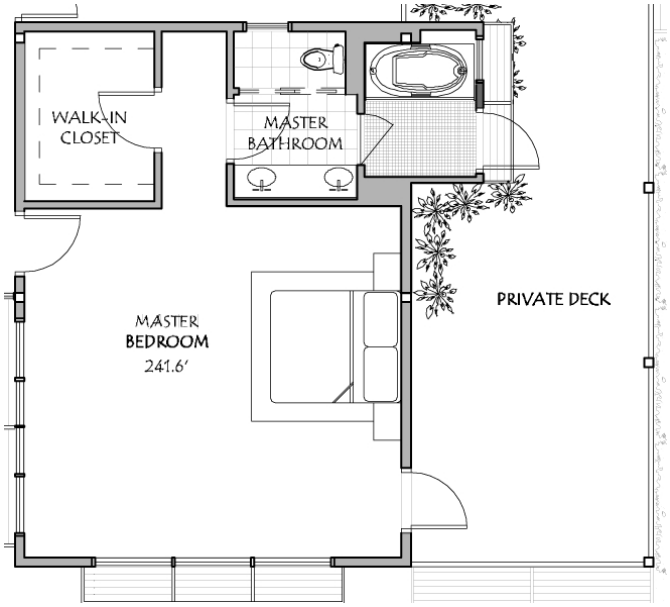


Figure 75: Center, "Health", Master bedroom

Although the Master bedroom suite is not located in the front left, "Love and Marriage" area due to functional purpose, I believe that the position the master bedroom is acceptable. Applications of blush tones, reds, and earth tones can be used for interior decor.

5.5.5.3 The Roof

According the *fengshui,* the roof of a house resembles a sign of protection of the dwelling and functionally protects the interior spaces from natural environment, like rain. I have chosen a flat roof instead of applying a gable or hipped roof because I believe a flat roof suite the typology, language, and appearance of the house better. According to *fengshui,* having a flat roof is unfavorable because a flat roof does not give a sense of protection and also gives a feeling of compression and being squashed. A flat roof is not completely flat, but is slightly sloped for purposes of proper drainage. To justify this compressing flat roof, an overhang shading device is added for shading purposes, but also to express that the masses of the house are uplifting towards the sky breaking out of being in a compressed state.

5.5.6 Materiality

In *fengshui,* there are five elements that have been mentioned in previous Chapter 3. These elements are wood, water, fire, metal, and earth. In able to encompass these five

elements I have decided to express them in the building materials and construction. Out of the five elements, three elements would be used: metal, earth, and wood. Each element will be translates as followed:

- Earth: poured in place concrete construction and rock wall façade
- Metal: steel frame construction and corrugated metal façade
- Wood: timber wood frame and wood siding veneer façade

The application of each building material will be located in there proper position. The steel would be in the left third of the house, concrete in the middle third, and wood in the right third of the house. By having all three different building materials and methods of construction will improve my knowledge of construction building methods. The concrete form in the middle anchors the house, feeling a sense of stability.

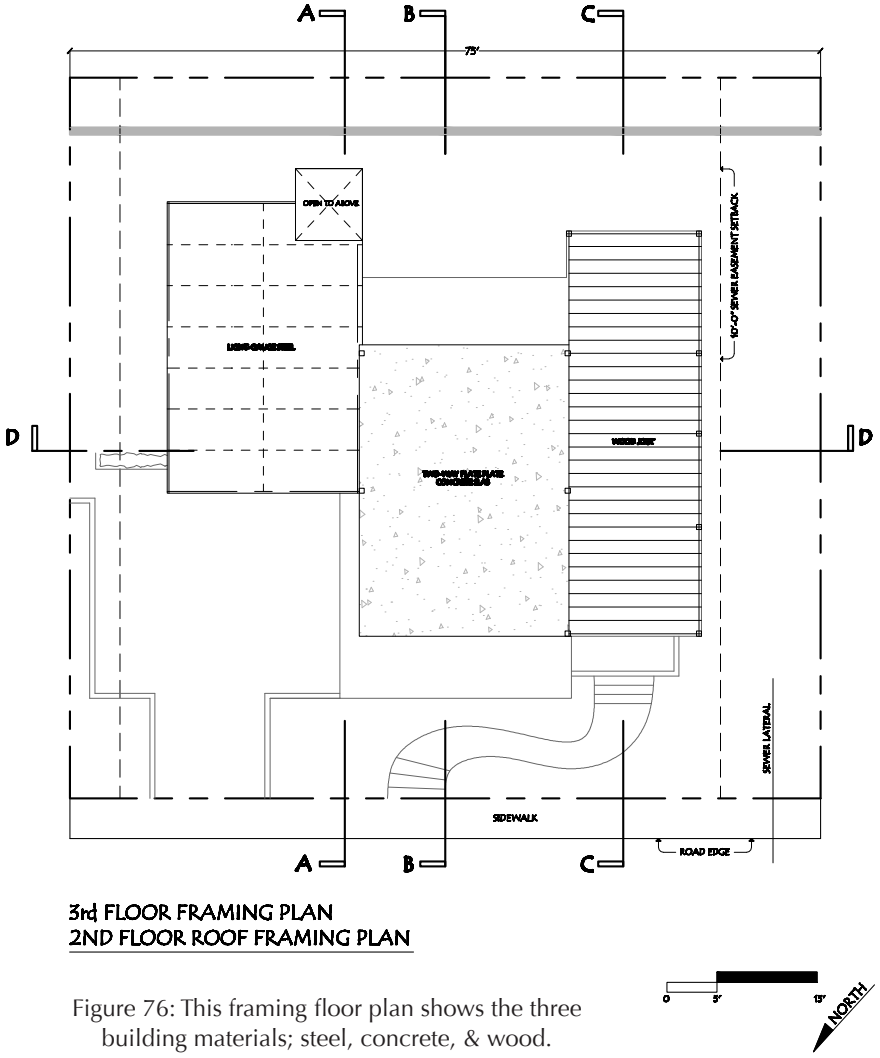


Figure 76: This framing floor plan shows the three building materials; steel, concrete, & wood.

In the section *5.5.5.1 The Site*, I mentioned the usage of large found rocks from excavating the land for building material for the house. I plan to use some of those large rocks for rock wall façades for the garage, a portion of some of the exterior wall of the first floor, and retaining walls. Using the rocks from the land as a building material expresses the connection between the house and the land and that it is one holistic organism, being in harmony with each other.

5.5.7 *Fengshui* Landscaping

The proper landscaping is just as important as the house. Landscaping can do wonders for the exterior and feel of the house. If the landscaping consist of dead plants, bare looking bushes, and sickly trees then the overall appearance looks drab and unpleasant. Landscaping with blooming flowers, lush green grass, and a tree with full leafy canopy appears to be healthy and lovely. Plants and tress have other purposes besides aesthetics, they provide oxygen, shade, privacy screen, food, tea, medicine, and much more.

I have chosen a selected variety of plants some of which are native Hawaiian species. I have selected two types of bamboo plants to serve as privacy screen from the neighbors. Bamboo is seen as a lucky plant in Chinese culture. The bamboo plants will be planted on three sides of the site, left, back, and right side. On the left and right side of the site I have chosen Golden Crookstem bamboo (*Phyllostachys Aureosalcata 'Aureocaulis'*). Planting bamboo on the left side of the property will give excellent dragon energy and considered the best energy of all.[225] This bamboo's culms (stem) has a lemon yellow color and if planted where direct sun can shine on the

Figure 77: Golden Crookstem bamboo
http://www.ferienhaus-ferienwohnung-berlin.de/bilder/Phyllostachys_aureosulcata_.jpg

225 Weber, Kathryn, "The Feng Shui of Trees," Ezine, Article Source, 2005. http://EzineArticles.com/100447 (8 November 2011).

Figure 78: Beautiful bamboo
http://www.bambuswald.de/images/stories/Mittlere_Bambus/Phyllostachys%20decora/Phyllostachys%20decora%20Bamuswald%204.jpg

culms from the south and the west, they often acquire a bright magenta highlight for a short time in the spring. This is the hardiest of the bamboos.[226] On the back of the property where the rock retaining wall and the neighbor above and behind, I have chosen Beautiful bamboo (*Phyllostachys decora*). This bamboo has very straight upright culms with masses of drooping foliage and shiny dark green leaves. The new shoots have distinct and colorful culms sheaths. This bamboo is native to the Yangtze valley of China where the locals refer it to as "Beautiful Bamboo". It is a fine bamboo for a tall dense screen.[227] The overall purposed for these bamboo plants are used for its height and angle need to screen views from the neighbors on all three sides.

As far as trees, I have included a variety of flowering and fruit bearing trees. Starting at front left "Love and Marriage", the entrance of the driveway, hot pink *plumeria* trees (*Plumeria rubra)* and an orange tree will be planted. The pink tones from the *plumeria* flower correlate with the colors of "Love and Marriage" and an orange tree will bring wealth to the site. Having these trees on either end of the driveway will visually create an organic gate. In the front left, "Wealth and Prosperity" corner is a pomelo tree (*Citrus maxina or Citrus grandis*)

Figure 79: Hot pink plumeria flowers
http://wildlifeofhawaii.com/flowers/1587/plumeria-rubra-frangipani/

226 "Phyllostachys aureosulcata 'Aureocaulis'," Bamboo Garden. 2010, <http://www.bamboogarden.com/> (8 November 2011).
227 "Phyllostachys decora," Bamboo Garden. 2010, <http://www.bamboogarden.com/> (8 November 2011).


Figure 80 & 81: left: Pomelo tree, right: Orange tree
http://www.garlickingdom.com/images/pomelo/pomelo1.jpg,
http://3.bp.blogspot.com/_PuoJ2BG8mkc/SqfwsHRdxHI/AAAAAAAAA3I/0yyq5yyU0Z4/s400/Oranges.jpg

as known as a Chinese grapefruit tree is a citrus fruit. Oranges and Pomelos are used in Chinese celebrations such as Chinese New Years and Mid-Autumn Festival (Harvest Festival or Moon Festival). During Chinese New Year oranges represent happiness, and pomelos symbolizes blessings. At Mid-Autumn Festival offerings of these fruits would be placed on an altar in celebrating the full moon. Having these trees planted in the front of the site will bring great opportunity in forms of wealth and advancements.

The left middle, "Family and Elders" area associated color is green, what better fruit tree to have is an avocado tree (*Persea Americana*). In the back center, "Career" area, a beautiful Mango tree (*Mangifera*) will be bountiful and provide shade. At the left back, "Travel and Helpful People", a lemon tree will be planted because the corresponding color is yellow.

Bushes and shrubs will also enhance the appearance of the landscaping; Red *hibiscus* along the edge of the sidewalk, red and green Ti leaf plants (*Cordyline fruticosa*) and *Laua'e* Fern (*Microsorium Scolopendria Plypodium*) in front of the rock wall façade of the garage that faces the street and throughout the side and back yard. A potted Jade plant (*Crassula Ovata*) will be placed near the footsteps of main entry of the house. The jade plant resembles a money plant and is very good to have near your front door or inside placed in the "Wealth and Prosperity" corner of your home. In the back left corner of the site, Native White Hibiscus (*kokio keokeo - Hibiscus arnottianus)* will surround the study room. An herb garden shall be along the entry to the kitchen. Herbs such as basil, sage,

rosemary, oregano, thyme, green onions, Chinese parsley, could be all planted here in planter boxes.

Figure 82: Red *Hibiscus*
http://cdn.buzznet.com/assets/users16/macpro/default/red-hibiscus--large-msg-12158712523.jpg

Figure 83: Red and green Ti leaf plants
http://www.growhawaii.com/images/ti%20variegated%20gallery%20copy.JPG

Figure 84: *Laua*ʻ*e* Fern
http://www.kauainursery.com/images/Fern-Lauae%20.jpg

Figure 85: Jade plant
http://plantes.grasses.voila.net/plantes%20grasses%20mediterranennes/images/plantes%20grasses%20diverses/Crassula%20ovata%201.JPG

Figure 86: White Hibiscus
http://www.hortmag.com/wp-content/uploads/2010/07/800px-Starr_060815-8586_Hibiscus_waimeae.jpg

5.6 The Conclusion

The Chinese flower knot is expressed through spaces intersecting with one another. A wall separates spaces that define rooms, but the flow from one space into the other is fluid. The flower knot symbolizes reunion, marriage, love, harmony, prosperity, and happiness. I have created spaces to embrace the ideas of a uniting family bond. The second floor, the main living area, is the core and heart of this house where activities can occur simultaneously.

Like a Chinese flower knot within this house design "intertwines" the fundamental qualities of function and the principles of *fengshui*, and the parameters and restrictions of the building codes. This design also encompasses Hawai'i natural elements, topography, sunlight, tradewinds, flora and fauna. Window efficiently captures both cooling tradewinds and sunlight. Landscaping enhances both the "feel" of *fengshui* and the overall appearance o the house.

Applications of *fengshui*, Form school is appropriate for Hawai'i typography and I believe form school is site related in architecture. Understanding the concept of *fengshui* principles and what it embodies can guide your design decisions. Functionality and *fenghsui* principles have commonalities that go hand in hand with one another. I have shown and justified my thoughts of application of *fengshui* principles by designing a house located in Hawai'i.

5.7 *Fengshui* Matrix

Site -Landscaping and Surrounding Buildings

Descriptions	*Fengshui*	Common Sense Good Design	Yes	No	Notes
Mountains and a hill should be behind of the dwelling, protecting the dwelling from evil influences.					
Water (stream, river, moving water), streets, or highway is in front of property is fine					
Assessment on landscaping & surrounding buildings - visual pollution - noise pollution - air pollution					
Neighbors reputation					
Trees on the northwest side of the site protect or they obstruct the "entry of wealth"					
Is the grass of the yard green: lushes, flowers, and trees					
Trees should be planted to make the site pleasant					
Building or House should not be at the end of a narrow street or end of a cul-de-sac					
Dwelling located in between two roads					
Y" junctions are no good (driveway/road)					
Site (land) slopes down from North to South – better if sloping towards water					
Site should not be steep and on an abrupt hills and slopes					
Shape of the site (plot of land)					
Dwelling should never face a grave yard					
Site must have fairly clean top soil & drainage must be efficient					
Trade winds are carried by the North					
Off-shore trade winds are from the South					
Open patio | lanai | balcony existing					

Additional Notes:

Dwelling Orientation

Descriptions	*Fengshui*	Common Sense Good Design	Yes	No	Notes
A house should not be sited in a valley, but against the hill					
Oriented dwelling towards the south					
Front portion of dwelling should not be higher than the rear					
A building constructed on elevated ground, facing a slow moving river or serene lake is well-located					
Dwelling should be facing a vacant lot on the south is good geomantically					
The front portion of a dwelling or a town should be lower than the back.					
Dwelling should be placed in the center of the plot					
Dwelling should take and placed 1/3 of the entire plot of land					
Shape of the dwelling					
Where is the driveway in regards of the dwelling					
The front should face a valley, sea or lower ground so that the back should face a hill, mountain or higher ground so that the structure or town has ample protection and captures cosmic breathe.					

Additional Notes:

Fenestrations (Doors & Window) Orientation

Descriptions	*Fengshui*	Common Sense Good Design	Yes	No	Notes
Front door & Back door should never align with each other					
Front door & stair case should never be aligned					
Doors along the Northeast are “the door of the devil”					
Doors along the Southwest is “back door of the devil”					
Windows should be provided light and ventilations to dwelling appropriately (Screen filters evil influences)					

Additional Notes:

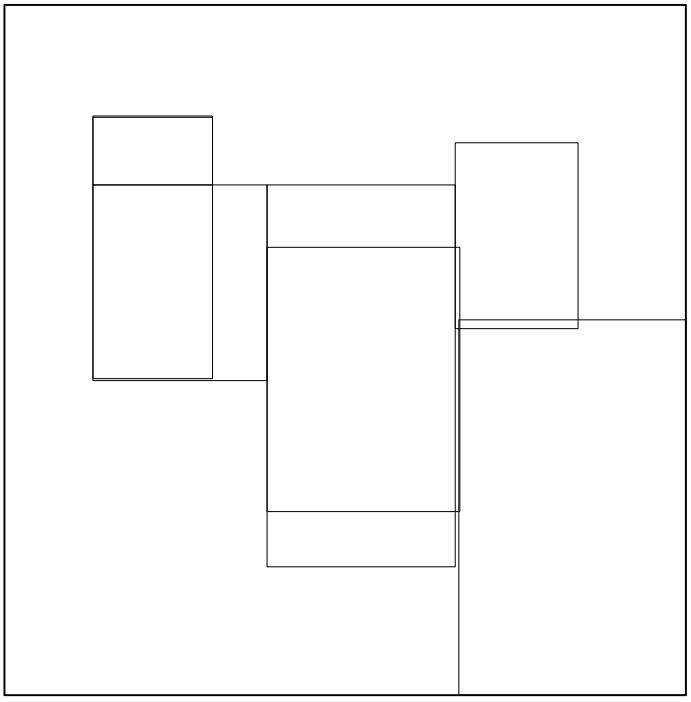
Room Orientation & Placements, etc…

Descriptions	*Fengshui*	Common Sense Good Design	Yes	No	Notes
Main entrance should not be in direct line with the north entrance would be better if entrance is facing or placed South					
Within a dwelling a courtyard or the living room should be placed in the center					
50% indoor & 50% outdoor space					
No odd corners should be exposed in any room					
Children's bedroom should not be located next to the kitchen					
Number of bedrooms; Good : 1, 2, 5, 6, 7,or 9 Bad: 3, 4,or 8					
Kitchen should not be placed in either east or south, is the Kitchen placed in either two areas?					
Bright colors should be used throughout the dwelling					

5.8 *Bauga* Matrix and My Interpertation of tha *Bagua*

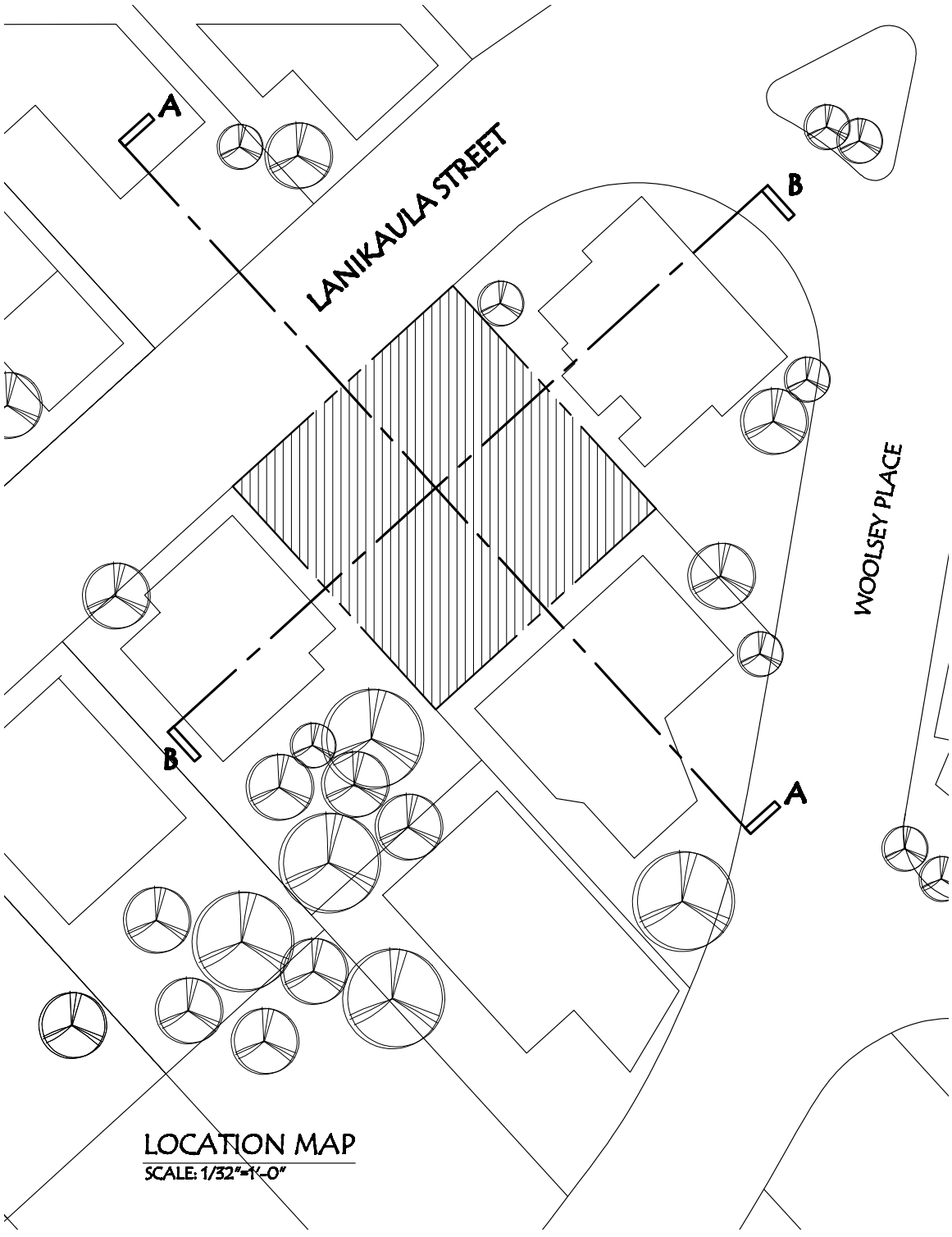
BACK LEFT (NORTH-WEST) Travel & Helpful People White, Grey, Black	BACK Career Water Black, Dark Blue Winter Tortoise/Snake Mercury	BACK RIGHT Skills & Knowledge Blue, Blue-Green
LEFT Children & Creativity Metal White, Pastels Autumn Tiger Venus	CENTER Center & Health EARTH Yellow Saturn	RIGHT Family & Elders Wood Green, Blue Spring Dragon Jupiter
FRONT LEFT Love & Marriage Red, Pink, White Blush Tones	FRONT Fame & Reputation Fire Red Summer Phoenix Mars	FRONT RIGHT Wealth & Prosperity Green, Purple, Gold

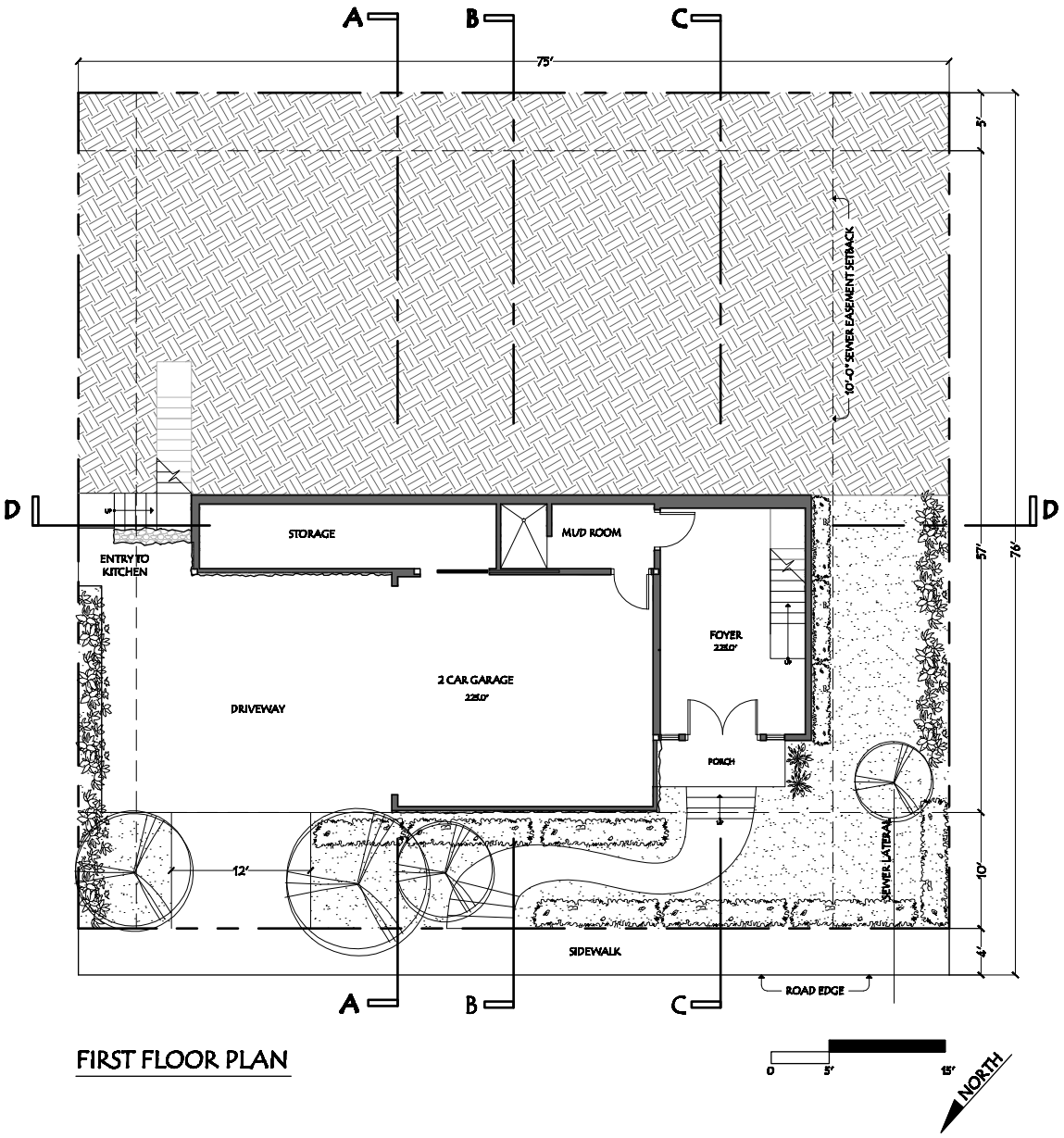
Ideal Bauga Matrix, organization chart according to Form School



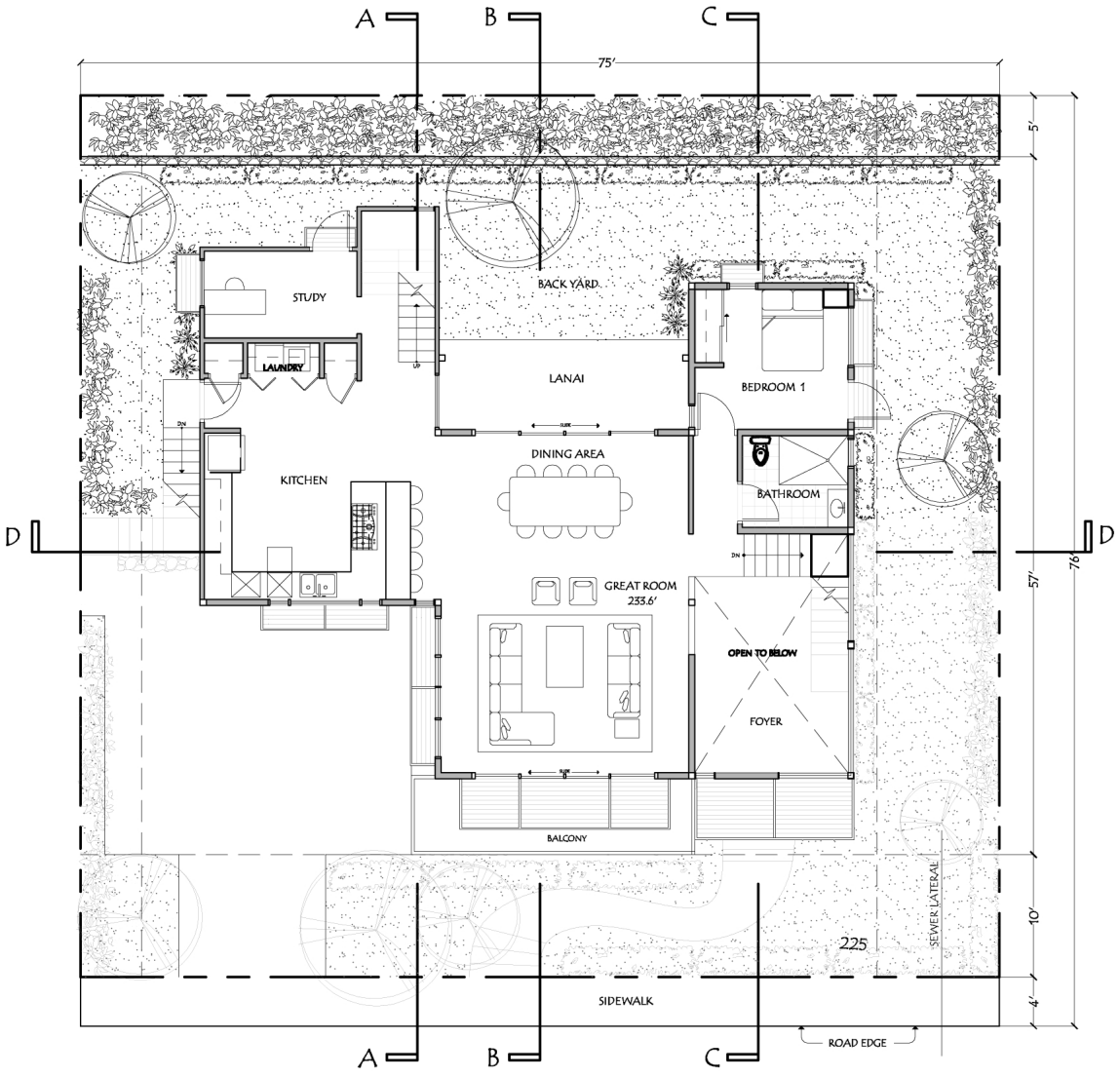
My Interpertation of the Bauga Matrix, organization chart

5.9 Drawings of the Liu Residence

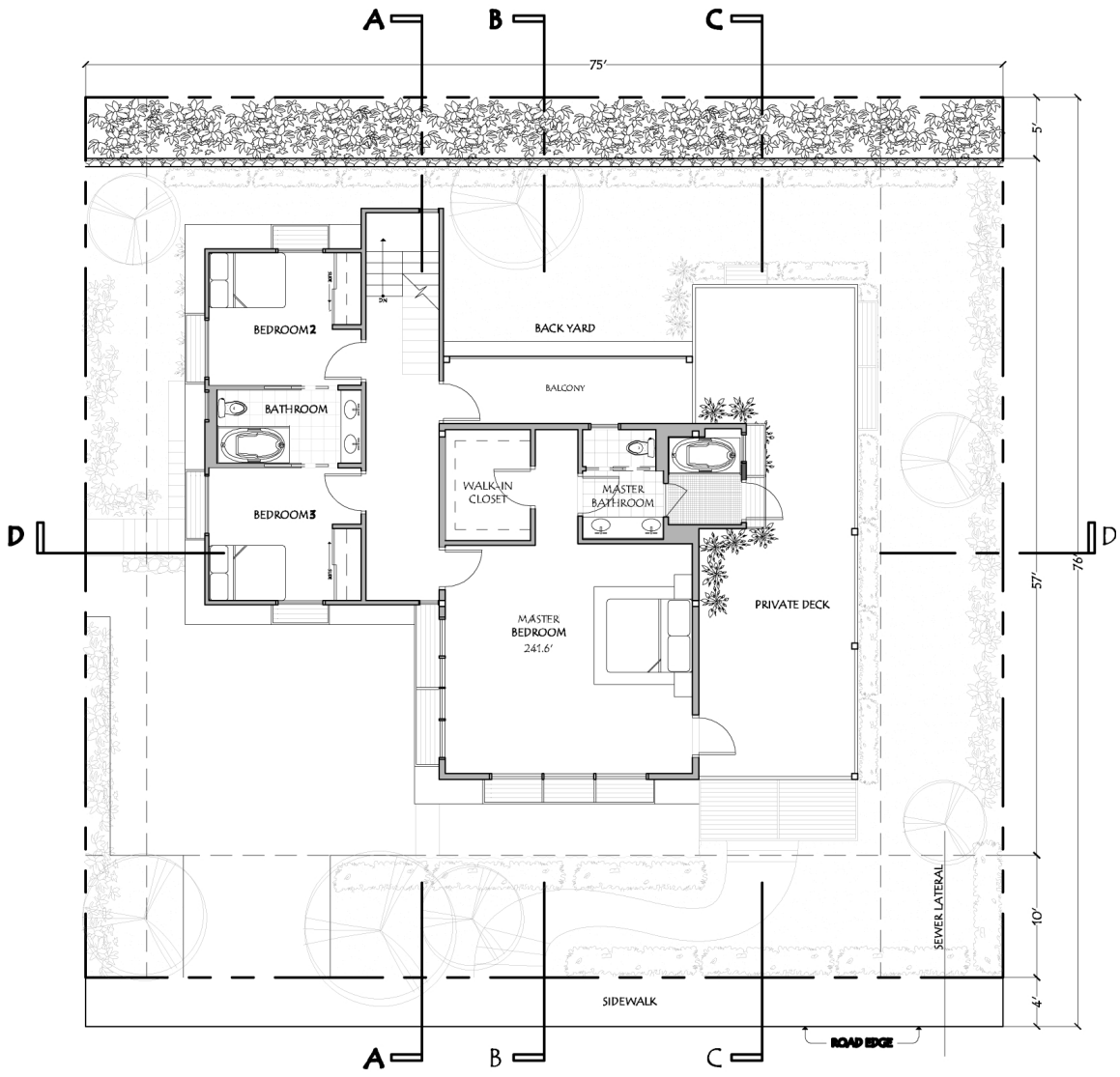




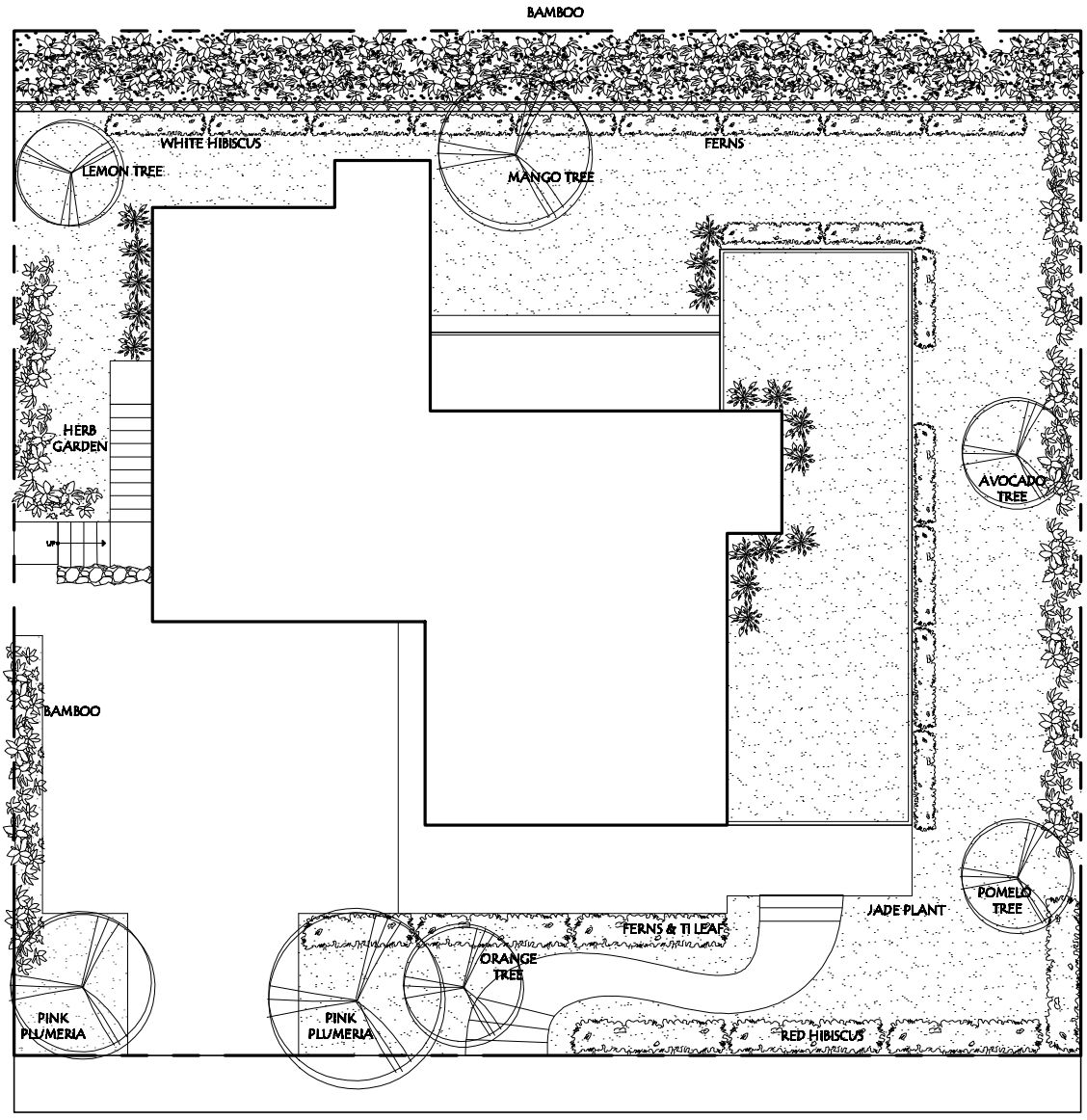
FIRST FLOOR PLAN



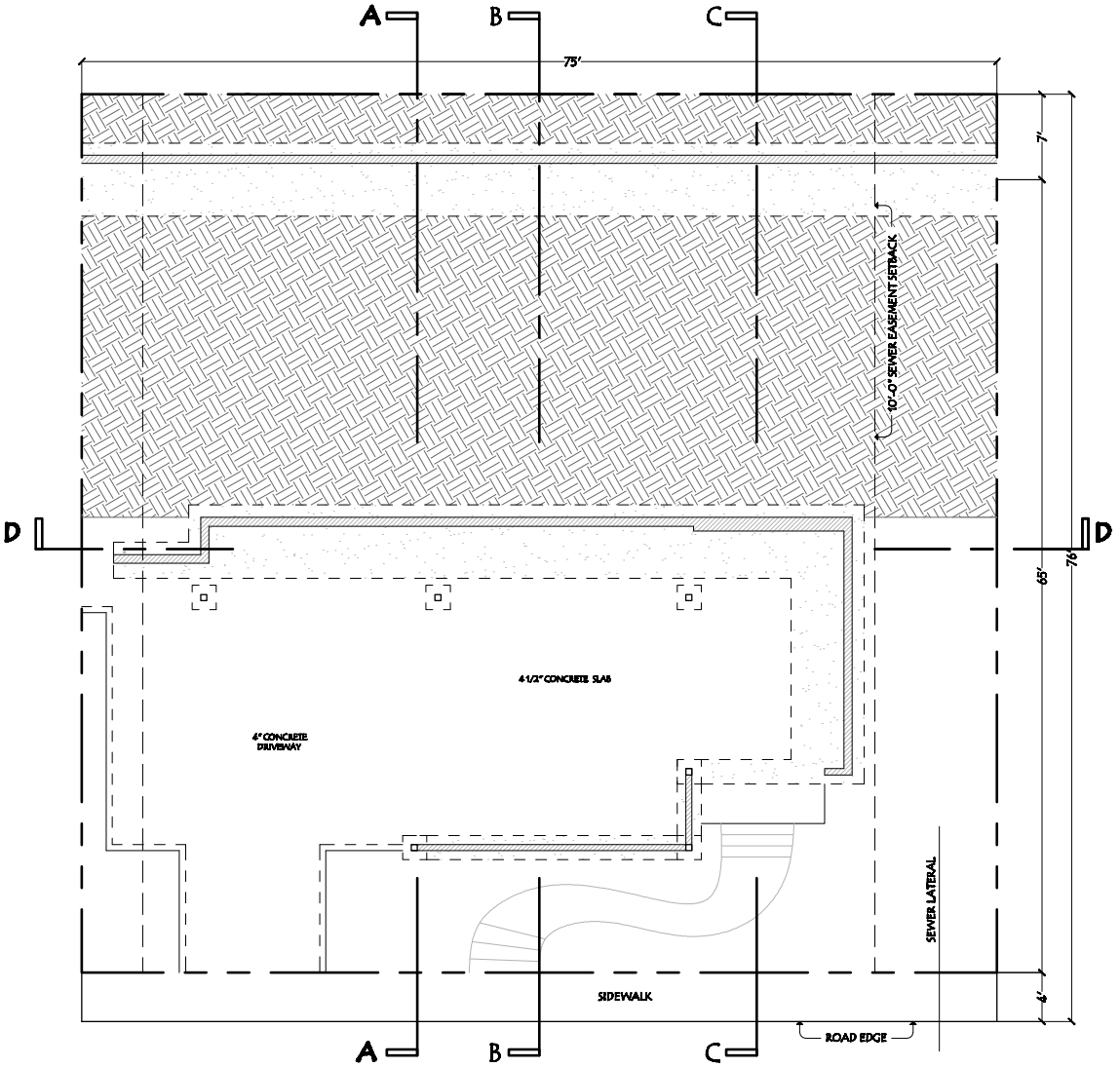
SECOND FLOOR PLAN



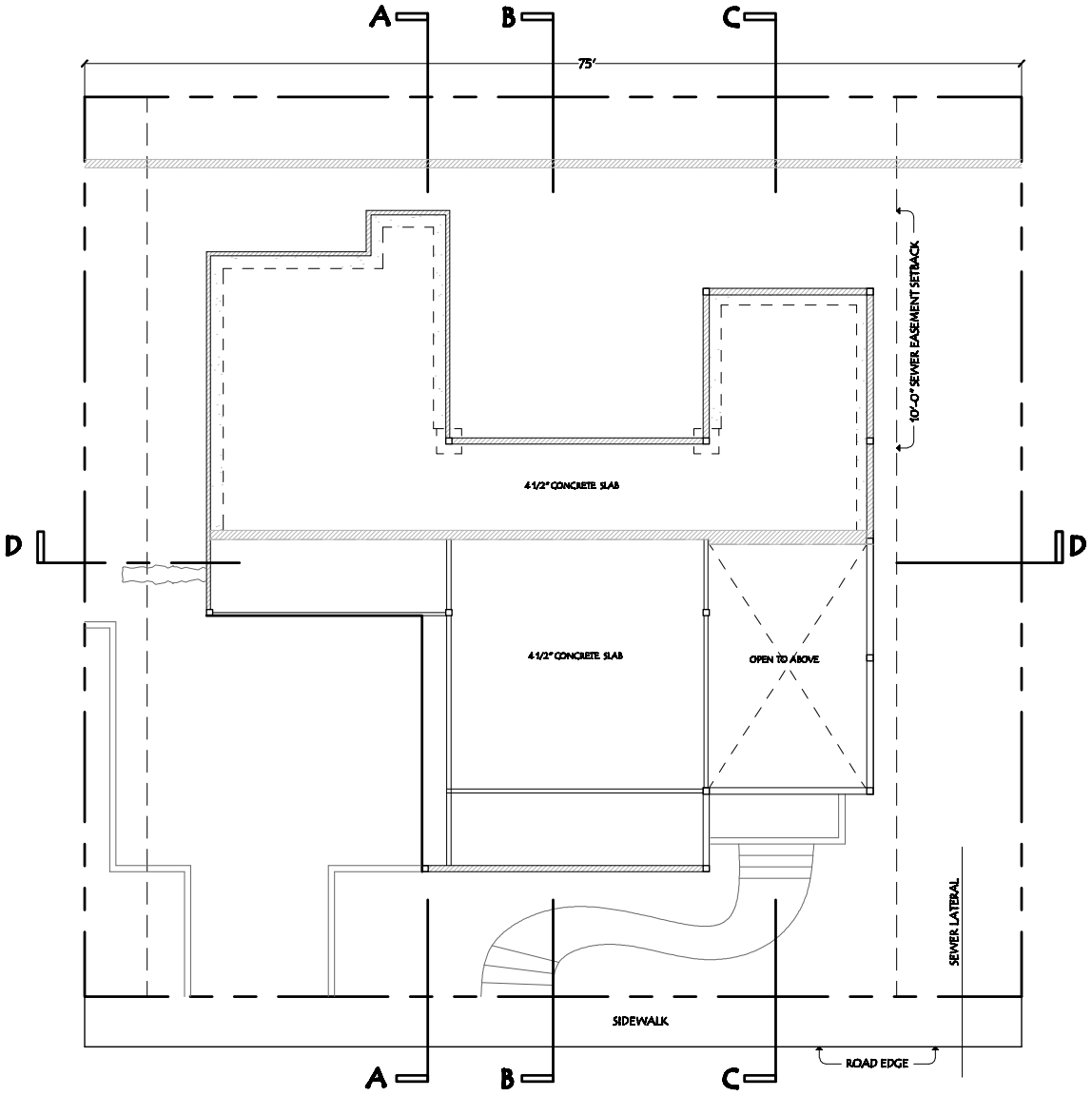
THIRD FLOOR PLAN



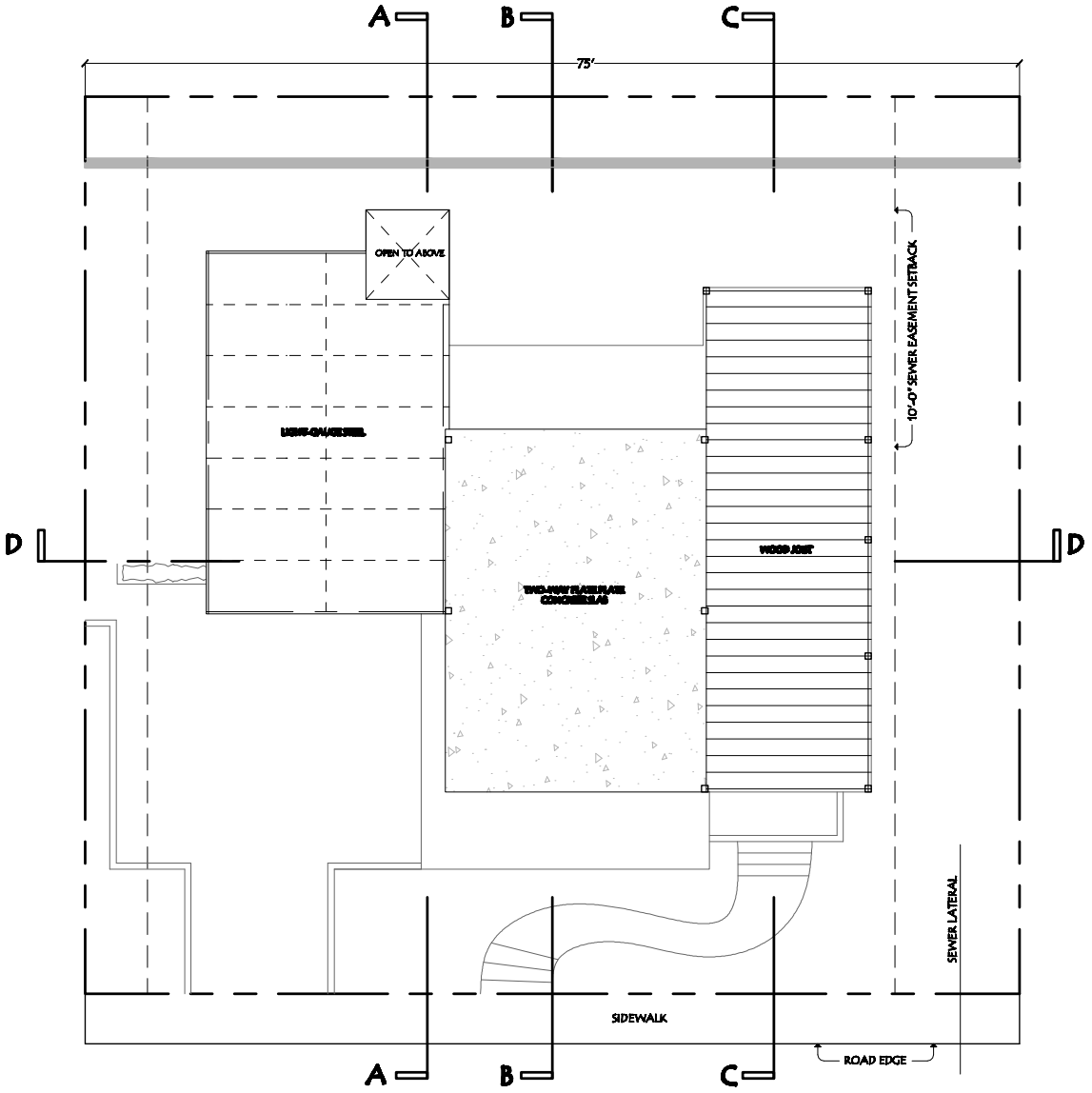
LANDSCAPING PLAN



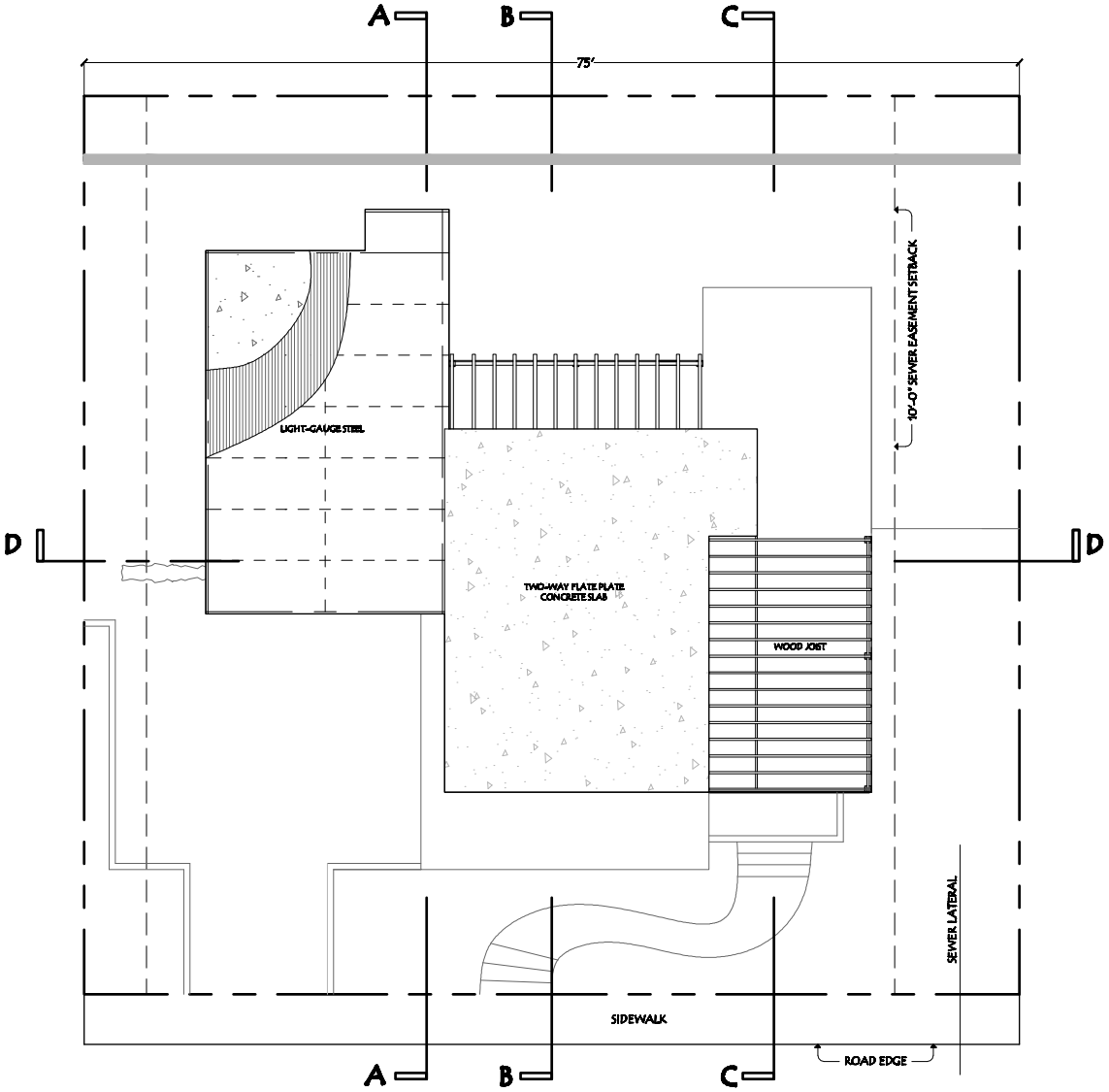
FOUNDATION PLAN



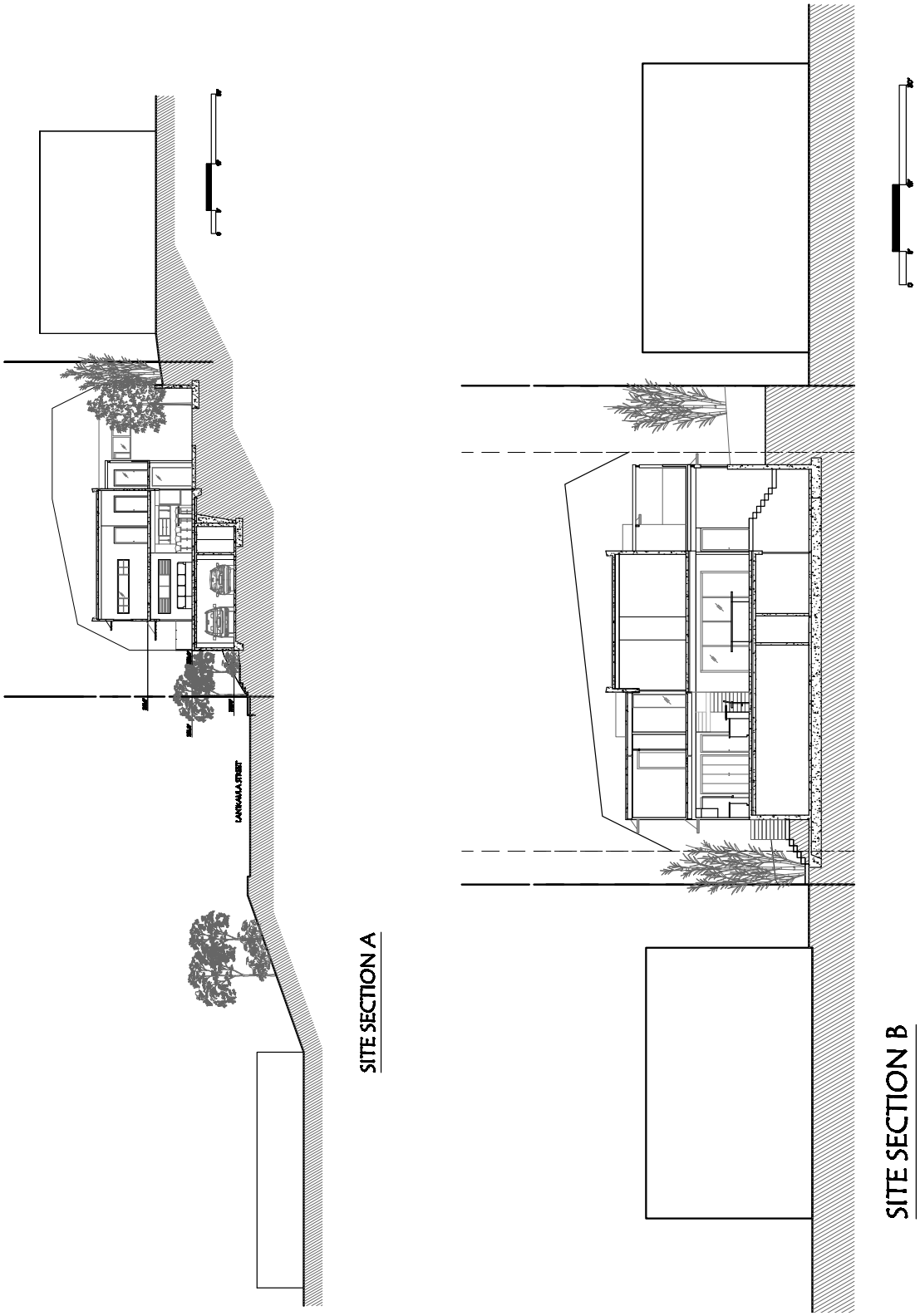
2nd FLOOR FRAMING PLAN
LOWER ROOF FRAMING PLAN



3rd FLOOR FRAMING PLAN
2ND FLOOR ROOF FRAMING PLAN

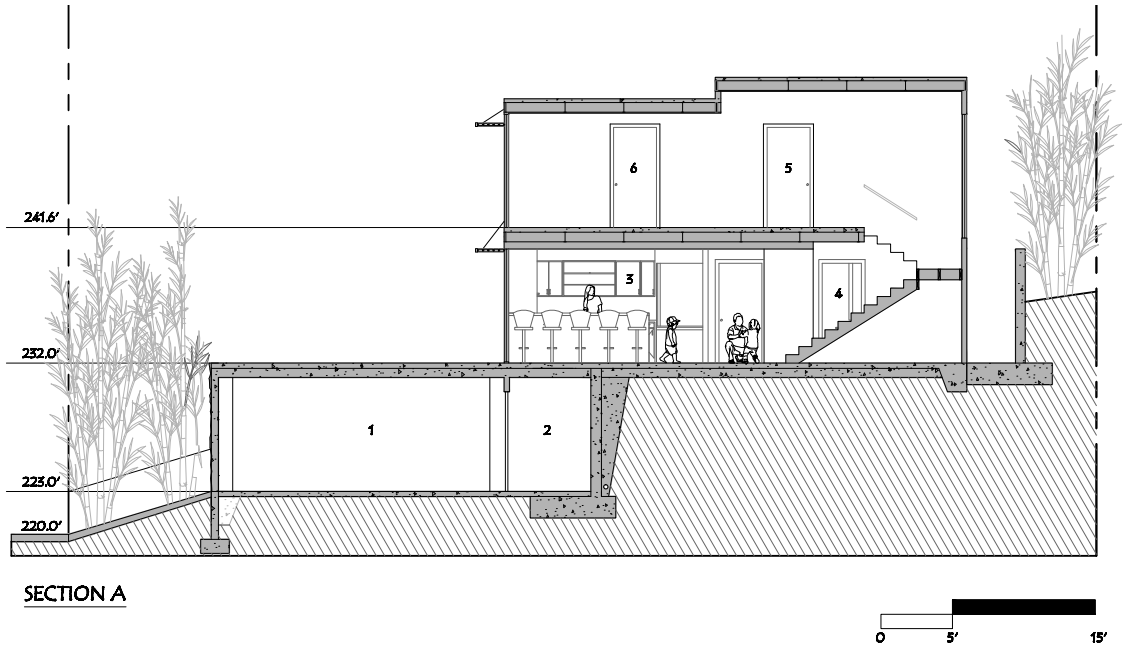


ROOF FRAMING PLAN



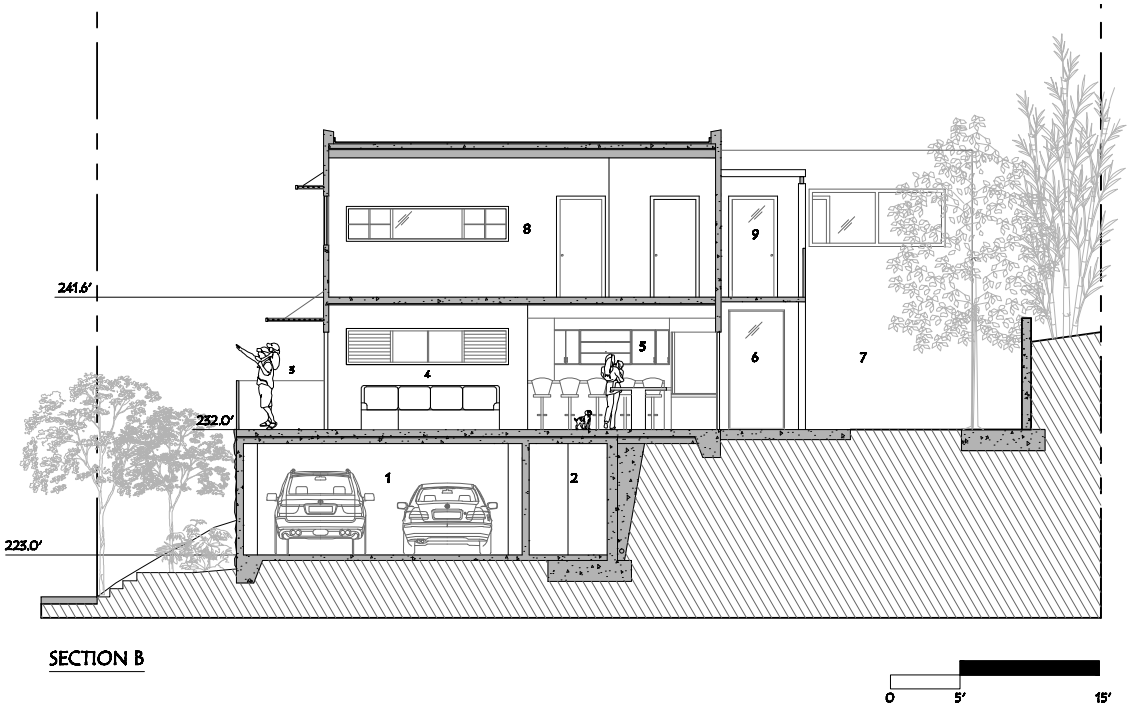
SITE SECTION A

SITE SECTION B



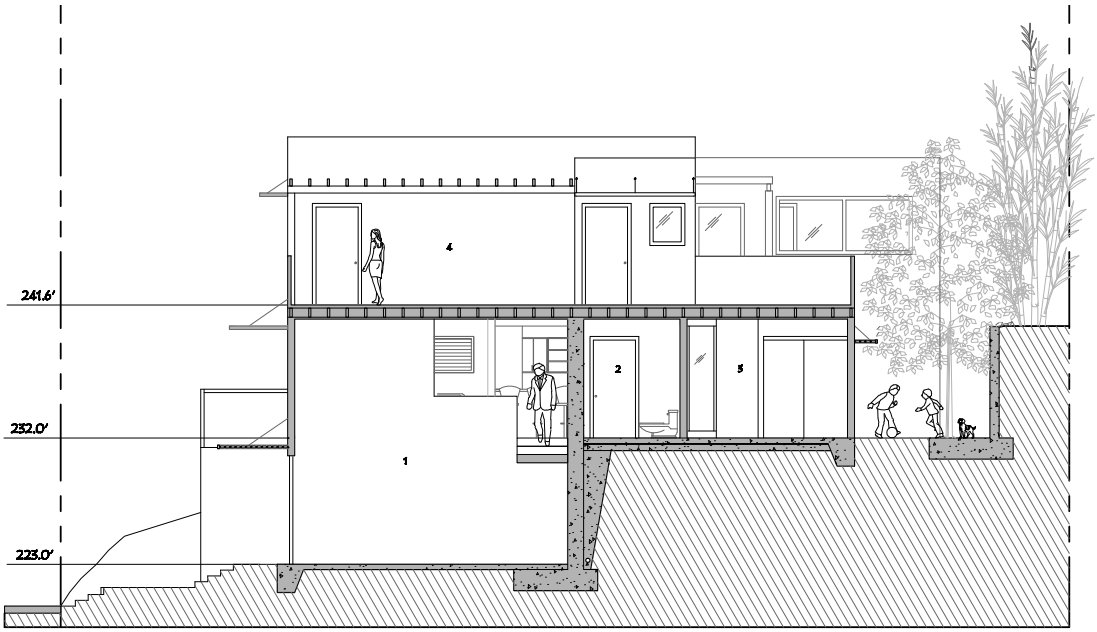
SECTION A

1. 2 Car Garage
2. Mud Room
3. Kitchen
4. Study Room
5. Bedroom 2
6. Bedroom 3

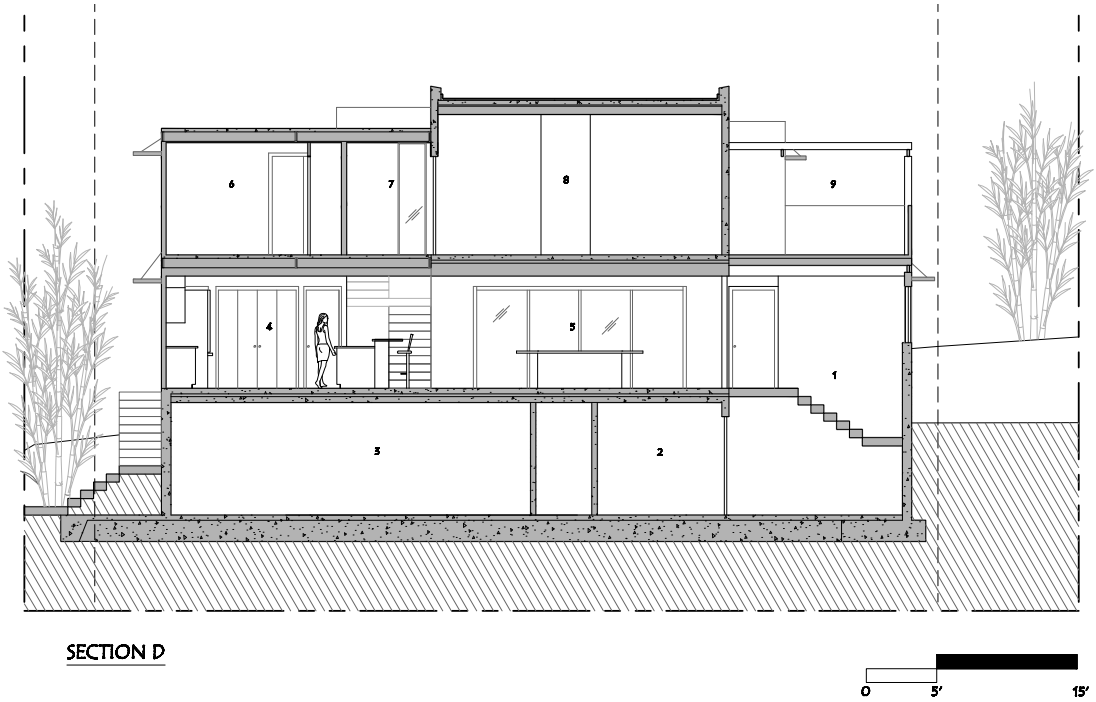


SECTION B

1. 2 Car Garage
2. Mud Room
3. Balcony
4. Great Room
5. Dining Room
6. Lanai
7. Backyard
8. Master Bedroom
9. Balcony

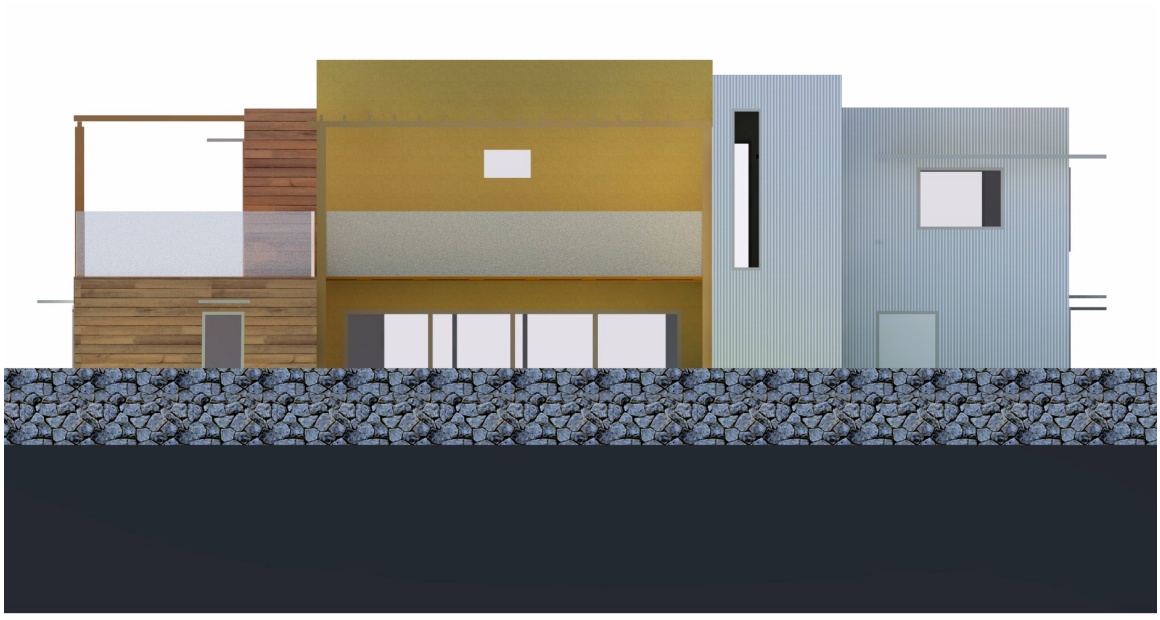


1. Foyer
2. Bathroom
3. Bedroom 1
4. Private Deck

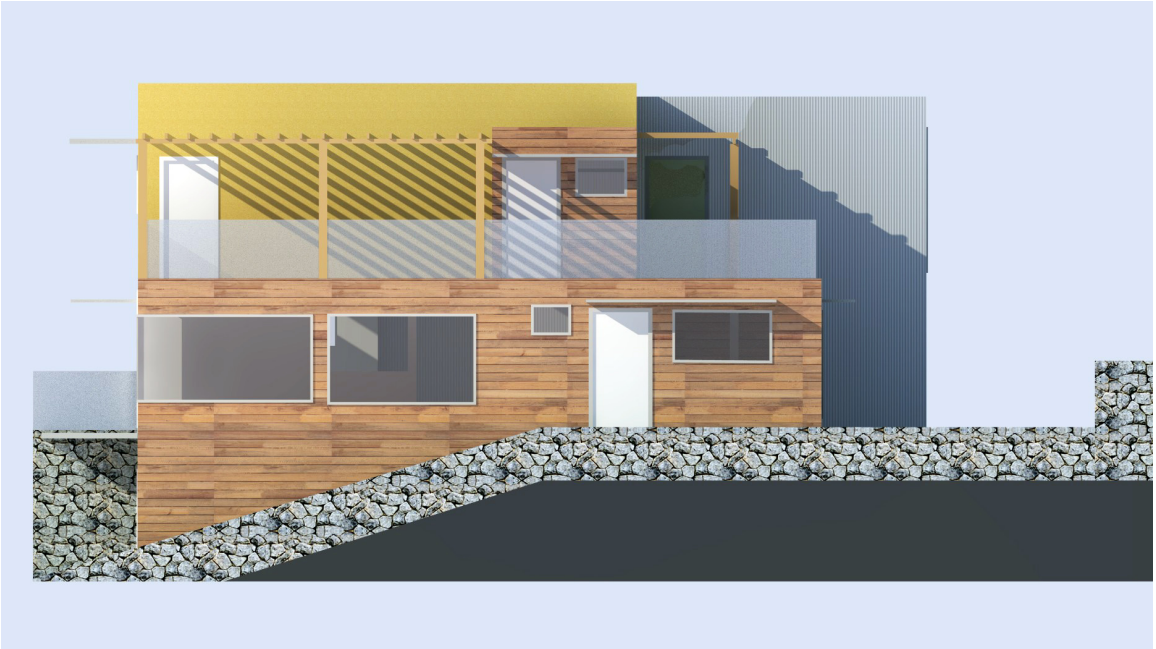


1. Foyer
2. Mudroom
3. Storage
4. Kitchen
5. Great Room
6. Bedroom 3
7. Hallway
8. Master Bedroom
9. Private Deck

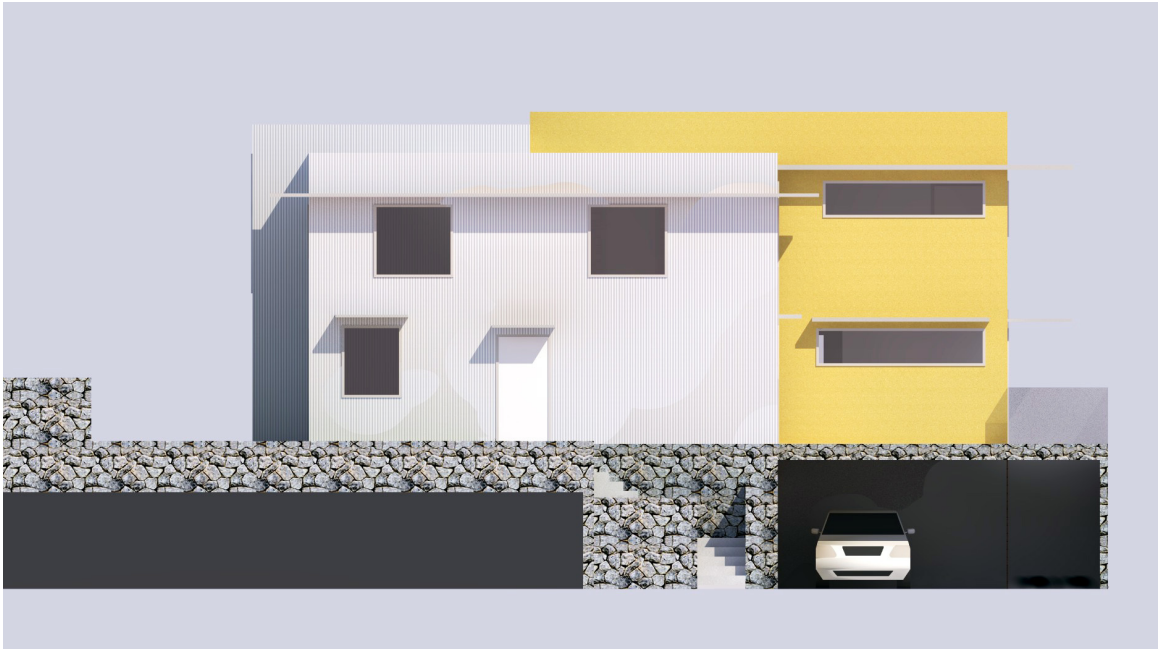
FRONT ELEVATION



BACK ELEVATION



RIGHT ELEVATION



LEFT ELEVATION

VIEW OF THE BACK YARD

VIEW OF THE FRONT ENTRY OF THE HOUSE

VIEW OF THE FRONT LEFT AND GARAGE

PHYSICAL MODEL REPRESENTATION OF THE LIU RESIDENCE
Front views

PHYSICAL MODEL REPRESENTATION OF THE LIU RESIDENCE
Back views

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